

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 U 1
 Edition : 01.12.89
 Replaces : 02.10.89
 Test oil : ISO-4113

Combination no. : 0 403 446 228

Injection pump
 Pump designation : PES6MW100/320RS1182
 EP type number : 0 413 406 167
 Governor
 Governor design. : RQV350...1300MW46-20
 Governer no. : 0 420 083 192

Cust. part no. : 1815267C91

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

A01

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 11.9...12.1

100 s: (11.7...12.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460

travel mm : 9.10...9.50

2nd speed rpm : 1350

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 800

Del.quantity : 119.0...121.0

1000 : (117.0...123.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:

1st rack travel in: 10.90
Speed rpm : 1360...1380
2nd rack travel in: 4.00
Speed rpm : 1480...1490
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 165
Rack travel in m: 10.90...11.00
3rd pressure hPa : 360
Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 1300

Del.quantity cm³/ s: 120.0...123.0
1000 s: (117.5...125.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 99.5...101.5
1000 s: (97.5...103.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1360...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ s: 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: IHC # 1815267C91
Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.
Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 U 2
 Edition : 12.01.90
 Replaces : 02.10.89
 Test oil : ISO-4113

Combination no. : 0 403 446 229

Injection pump
 Pump designation : PES6MW100/320RS1182
 EP type number : 0 413 406 167
 Governor
 Governor design. : RQV350...1200MW64-1
 Governer no. : 0 420 083 193

Cust. part no. : 1815224C91

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 164.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 11.9...12.1

100 s: (11.7...12.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 6.2...6.4
 Del.quantity cm³/ : 1.4...1.8
 100 s: (1.1...2.0)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1350
	travel mm	: 8.30...8.50
2nd speed	rpm	: 1460
	travel mm	: 9.10...9.50
3rd speed	rpm	: 550
	travel mm	: 3.10...3.70
4th speed	rpm	: 350
	travel mm	: 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1200
Aneroid pressure h:	800	
Del.quantity		: 119.5...121.5
	1000	: (117.5...123.5)
Spread	cm ³	: 3.50
	1000	: (6.00)

RATED SPEED

1st version

Control lever
position degrees: 43...51

Testing:

1st rack travel in: 10.90
Speed rpm : 1255...1275
2nd rack travel in: 4.00
Speed rpm : 1375...1385
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 6.20...6.40

CONSTANT REGULATION

Speed rpm : 360...450

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200
Rack travel in m: 11.90...12.00
2nd speed rpm : 800
Rack travel in m: 12.40...12.50
3rd speed rpm : 1000
Rack travel in m: 11.90...12.00
4th speed rpm : 900
Rack travel in m: 12.20...12.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 230
Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.80...10.90
2nd pressure hPa : 400
Rack travel in m: 11.70...12.00
3rd pressure hPa : 800
Rack travel in m: 12.40...12.50

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 800
Del.quantity cm³/ 1000 s: 126.0...130.0
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 99.0...101.0
1000 s: (97.0...103.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1255...1275

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.40
Del.quantity cm³/ 1000 s: 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: IHC # 1815224C91

Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.
Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 V
 Edition : 01.12.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 446 230

Injection pump
 Pump designation : PES6MW100/320RS1185
 EP type number : 0 413 406 170
 Governor
 Governor design. : RQV350...1200MW64-2
 Governer no. : 0 420 083 194

Cust. part no. : 1815225C91

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 201.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.75...3.85
 : (3.70...3.90)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 14.2...14.4
 100 s: (14.0...14.6)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm³/ : 1.4...1.8
 100 s: (1.1...2.0)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1350
	travel mm	: 8.30...8.50
2nd speed	rpm	: 1460
	travel mm	: 9.10...9.50
3rd speed	rpm	: 550
	travel mm	: 3.10...3.70
4th speed	rpm	: 350
	travel mm	: 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 800
 Del.quantity : 142.5...144.5
 1000 : (140.5...146.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 13.00
Speed rpm : 1265...1285
2nd rack travel in: 4.00
Speed rpm : 1415...1425
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack trav: 9.00
Speed rpm : 350
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 360...450

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 14.00...14.10
2nd speed rpm : 800
Rack travel in m: 14.40...14.60
3rd speed rpm : 1150
Rack travel in m: 14.10...14.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.70
2nd pressure hPa : 450
Rack travel in m: 13.30...13.60
3rd pressure hPa : 800
Rack travel in m: 14.40...14.60

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 800
Del.quantity cm³/ : 151.0...155.0
1000 s: (149.0...157.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 98.0...100.0
1000 s: (96.0...102.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1265...1285

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: IHC # 1815225C91

Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.
Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 81
 Edition : 02.01.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 446 231

Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1400MW48-8
 Governer no. : 0 420 083 175

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

A07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 49...57

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 12.10...12.30
3rd speed rpm : 950
Rack travel in m: 11.80...12.10
4th speed rpm : 1200
Rack travel in m: 11.00...11.30

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 55
 Edition : 02.10.89
 Replaces : 15.08.89
 Test oil : ISO-4113

 Combination no. : 0 403 446 231

 Injection pump
 Pump designation : PES6MW100/720RS1144-
 1
 EP type number : 0 413 406 159
 Governor
 Governor design. : RQV300...1400MW48-8
 Governer no. : 0 420 083 175

 Customer-spec. information
 Customer : MB-NFZ

 Engine : OM 366 A

 1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 047

 Inlet press., bar : 1.50

 Test nozzle holder
 assembly : 0 681 343 009

 Opening
 pressure, bar : 172...175

 Test lines : 1 680 715 015

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm³ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm³ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 12.10...12.30
3rd speed rpm : 950
Rack travel in m: 11.80...12.10
4th speed rpm : 1200
Rack travel in m: 11.00...11.30

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 80
 Edition : 02.01.90
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 403 446 232

 Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1400MW48-11
 Governer no. : 0 420 083 190

 Customer-spec. information
 Customer : MB-NFZ

 Engine : OM366A

 1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 047

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test Lines : 1 680 750 015

 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.50...11.70
3rd speed rpm : 1000
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 67.5...70.5
1000 s: (65.0...73.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 69
 Edition : 02.10.89
 Replaces : 15.08.89
 Test oil : ISO-4113

 Combination no. : 0 403 446 232

 Injection pump
 Pump designation : PES6MW100/720RS1144-
 1
 EP type number : 0 413 406 159
 Governor
 Governor design. : RQV300...1400MW48-11
 Governer no. : 0 420 083 190

 Customer-spec. information
 Customer : MB-NFZ

 Engine : OM366A

 1st version kW : 125.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 047

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 015

 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm³ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm³ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.50...11.70
3rd speed rpm : 1000
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 67.5...70.5
1000 s: (65.0...73.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 4
 Edition : 02.01.90
 Replaces : 18.08.89
 Test oil : ISO-4113

Combination no. : 0 403 446 233

Injection pump
 Pump designation : PES6MW100/320RS1171
 EP type number : 0 413 406 156
 Governor
 Governor design. : RQV300...1400MW97-1
 Governer no. : 0 420 083 195

Customer-spec. information
 Customer : RVI

Engine : MIDS060212C

1st version kW : 97.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.50...9.60

Del.quantity cm³/

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.50...5.70

Del.quantity cm³/

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1570

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 500

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 8.50	Remarks:
Speed rpm : 1460...1470	:
2nd rack travel in: 4.00	
Speed rpm : 1565...1595	Setting and blocking of pointer of
4th rack travel in: 1700	start-of-delivery sensor on cyl. 1
Speed rpm : 0.00...1.00	start of delivery

LOW IDLE 1
Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 3.9

Testing:
Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.50...5.70

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 900
Del.quantity cm³/ : 66.5...69.5
1000 s: (64.0...72.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.50
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 T 1
 Edition : 09.11.89
 Replaces : 18.08.89
 Test oil : ISO-4113

 Combination no. : 0 403 446 234

 Injection pump
 Pump designation : PES6MW100/320RS1176
 EP type number : 0 413 406 158
 Governor
 Governor design. : RQV275...1250MW80-4
 Governer no. : 0 420 083 196

 Customer-spec. information
 Customer : RVI

 Engine : MIDR 060226H

 1st version kW : 143.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 2 417 413 033

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 008

 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

 Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

 Phasing : 0-60-120-180-240-300

 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

 1st speed rpm : 1250

 Rack travel in mm : 11.40...11.50

 Del.quantity cm³/ : 9.9...10.1
 100 s: (9.7...10.3)

 Spread cm³ : 0.3
 100 s: (0.6)

 2nd speed rpm : 275.0
 Rack travel in mm : 6.60...6.80
 Del.quantity cm³/ : 2.0...2.4
 100 s: (1.7...2.6)
 Spread cm³ : 0.3
 100 s: (0.5)

 (B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 1450
 travel mm : 8.90...9.30
 2nd speed rpm : 1325
 travel mm : 8.00...8.20
 3rd speed rpm : 500
 travel mm : 3.00...3.60
 4th speed rpm : 275
 travel mm : 1.00...1.40

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1320
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

 1st version
 Speed rpm : 1250
 Aneroid pressure h: 750
 Del.quantity : 99.0...101.0
 1000 : (97.0...103.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:

1st rack travel in: 10.40
Speed rpm : 1335...1345
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 4.7

Testing:

Speed rpm : 200
Minimum rack trav: 8.10
Speed rpm : 275
Rack travel in mm : 6.60...6.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 750
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.60
2nd pressure hPa : 150
Rack travel in m: 9.90...10.00
3rd pressure hPa : 300
Rack travel in m: 10.90...11.20

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 750
Speed rpm : 750
Del.quantity cm³/ : 94.5...97.5
1000 s: (92.0...100.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 51.0...53.0
1000 s: (49.0...55.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1335...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 88.0...102.0
1000 s: (85.0...105.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Set start-of-delivery sensor at pre-stroke to 3.50...3.60 mm for cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8/8 S 3
 Edition : 02.01.90
 Replaces : 18.08.89
 Test oil : ISO-4113

Combination no. : 0 403 446 235

Injection pump
 Pump designation : PES6MW100/320RS1171
 EP type number : 0 413 406 156
 Governor
 Governor design. : RQV300...1300MW80-5
 Governer no. : 0 420 083 197

Customer-spec. information

Customer : RVI

Engine : MIDS 060212B

1st version kW : 113.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.40...5.60

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1500

travel mm : 8.70...9.10

2nd speed rpm : 1350

travel mm : 7.60...7.80

3rd speed rpm : 500

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 9.80

Speed rpm : 1370...1380
2nd rack travel in: 4.00
Speed rpm : 1520...1550
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 300
Rack travel in mm : 5.40...5.60

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.80...8.90

Measurement
Speed 1/min : 500

1st pressure hPa : 100
Rack travel in m: 9.30...9.40
2nd pressure hPa : 200
Rack travel in m: 10.20...10.50
3rd pressure hPa : 700
Rack travel in m: 10.80...10.90

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 900
Del.quantity cm3/ : 81.0...84.0
1000 s: (78.5...86.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 43.0...45.0
1000 s: (41.0...47.0)

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark mode with
prestroke 3.00...3.10 mm at barrel 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 6,0 W
 Edition : 13.12.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 236
 Injection pump
 Pump designation : PES6MW100/320RS1119-3
 EP type number : 0 413 406 173
 Governor
 Governor design. : RQV300...1400MW57-2
 Governer no. : 0 420 083 198
 Customer-spec. information
 Customer : VOLVO-TRUCK
 Engine : TD 61-FBQ
 1st version kW : 149.0
 Rated speed : 2800
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm		: 12.40...12.50
Del.quantity cm ³ /		: 11.4...11.6
	100 s:	(11.2...11.8)
Spread	cm ³	: 0.3
	100 s:	(0.6)

2nd speed	rpm	: 300.0
Rack travel in mm		: 6.2...6.4
Del.quantity cm ³ /		: 1.6...2.0
	100 s:	(1.3...2.2)
Spread	cm ³	: 0.3
	100 s:	(0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1600
travel mm		: 9.50...9.90
2nd speed	rpm	: 1450
travel mm		: 8.40...8.60
3rd speed	rpm	: 550
travel mm		: 3.20...3.80
4th speed	rpm	: 300
travel mm		: 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1480
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del.quantity : 114.0...116.0
 1000 : (112.0...118.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

1st rack travel in: 11.40
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1610...1640
4th rack travel in: 1725
Speed rpm : 0.10...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 540...600

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 665
Rack travel mm : 12.10...12.20

Measurement
Speed 1/min : 550

1st pressure hPa : -
Rack travel in m: 10.00...10.10
2nd pressure hPa : 400
Rack travel in m: 10.30...10.50
3rd pressure hPa : 1000
Rack travel in m: 12.40...12.50

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 75.0...77.0
1000 s: (73.0...79.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (137.0...163.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.20...6.40
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 6,0 Z
 Edition : 13.12.89
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 403 446 237

 Injection pump
 Pump designation : PES6MW100/320RS1119-4

 EP type number : 0 413 406 174
 Governor
 Governor design. : RQV300...1400MW57-3
 Governer no. : 0 420 083 199

 Customer-spec. information
 Customer : VOLVO-TRUCK

 Engine : TD 61-FHQ / GC

 1st version kW : 127.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 047

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test Lines : 1 680 750 014

 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

 Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

 Phasing : 0-60-120-180-240-300

 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

 1st speed rpm : 1000

 Rack travel in mm : 11.90...12.00

 Del.quantity cm³/ : 9.6...9.8
 100 s: (9.4...10.0)

 Spread cm³ : 0.3
 100 s: (0.6)

 2nd speed rpm : 300.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 1600
 travel mm : 9.50...9.90
 2nd speed rpm : 1450
 travel mm : 8.40...8.60
 3rd speed rpm : 550
 travel mm : 3.20...3.80
 4th speed rpm : 300
 travel mm : 1.20...1.60

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1480
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

 1st version
 Speed rpm : 1000
 Aneroid pressure h: 600
 Del.quantity : 96.0...98.0
 1000 : (94.0...100.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:

1st rack travel in: 10.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1590...1620
4th rack travel in: 1725
Speed rpm : 0.10...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 100
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 540...600

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 470
Rack travel mm : 11.60...11.70

Measurement
Speed 1/min : 550

1st pressure hPa : -
Rack travel in m: 10.40...10.50
2nd pressure hPa : 330
Rack travel in m: 10.60...10.80
3rd pressure hPa : 600
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 75.0...77.0
1000 s: (73.0...79.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (137.0...163.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : AIF 5,9 A
 Edition : 02.01.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 238
 Injection pump
 Pump designation : PES6MW100/720RS1188
 EP type number : 0 413 406 175
 Governor
 Governor design. : RQV300...1350MW106
 Governer no. : 0 420 083 200
 Customer-spec. information
 Customer : AIFO
 Engine : 8061.25.051
 1st version kW : 210.0
 Rated speed : 2700
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 11.50...14.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 13.1...13.3

100 s: (12.9...13.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1530

travel mm : 9.00...9.20

2nd speed rpm : 1400

travel mm : 7.80...8.20

3rd speed rpm : 600

travel mm : 2.90...3.50

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350

Del.quantity : 131.0...133.0

1000 : (129.0...135.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 10.90
Speed rpm : 1390...1400
2nd rack travel in: 4.00
Speed rpm : 1515...1545
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 200
Minimum rack trav: 7.50
Speed rpm : 300
Rack travel in mm : 5.90...6.10

TORQUE CONTROL

Dimension a mm : 1.30
Torque control curve - 1st version
1st speed rpm : 1350
Rack travel in m: 11.90...12.00
2nd speed rpm : 800
Rack travel in m: 13.20...13.30
3rd speed rpm : 1000
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 149.0...152.0
1000 s: (146.5...154.5)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1390...1400

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...120.0
1000 s: (107.0...123.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 Q
 Edition : 24.11.89
 Replaces : 23.06.89
 Test oil : ISO-4113
 Combination no. : 0 403 456 105
 Injection pump
 Pump designation : PES6MW100/321RS1186
 EP type number : 0 413 406 168
 Governor
 Governor design. : RQ250/1200MW84-2
 Governer no. : 0 420 082 040
 Customer-spec. information
 Customer : MAN
 Engine : D 0826 LUH
 1st version kW : 157.0
 Rated speed : 2400
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 1000
 Rack travel in mm : 14.70...14.80
 Del.quantity cm³/ : 12.6...12.8
 100 s: (12.4...13.0)
 Spread cm³ : 0.3
 100 s: (0.6)
 2nd speed rpm : 250.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 1.9...2.3
 100 s: (1.6...2.5)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 1280
 travel mm : 9.50...9.90
 2nd speed rpm : 1250
 travel mm : 7.50...7.70
 3rd speed rpm : 350
 travel mm : 5.20...5.80
 4th speed rpm : 250
 travel mm : 2.30...2.70

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del.quantity : 126.0...128.0
 1000 : (124.0...130.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Setting point:

Speed rpm : 600

Rack travel in mm : 15.5

Testing:

1st rack travel in: 13.80

Speed rpm : 1245...1260

2nd rack travel in: 4.00

Speed rpm : 1285...1315

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 5.5

Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 250

Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 14.70...14.80

2nd speed rpm : 600

Rack travel in m: 14.80...14.90

3rd speed rpm : 800

Rack travel in m: 14.80...14.90

4th speed rpm : 1200

Rack travel in m: 14.30...14.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 200

Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 12.20...12.30

2nd pressure hPa : 400

Rack travel in m: 13.80...14.10

3rd pressure hPa : 1000
Rack travel in m: 14.80...14.90

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 600

Del.quantity cm³/ 1000 s: 126.5...129.5
(124.0...132.0)

Spread cm³ : 5.00
1000 s: (7.0)

Aneroid pressure h: 1000

Speed rpm : 800

Del.quantity cm³/ 1000 s: 126.5...129.5
(124.0...132.0)

Aneroid pressure h: 1000

Speed rpm : 1200

Del.quantity cm³/ 1000 s: 123.0...126.0
(120.5...128.5)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ 1000 s: 74.0...76.0
(72.0...78.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ 1000 s: 130.0...140.0
(127.0...143.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.40...5.60

Del.quantity cm³/ 1000 s: 19.0...23.0
(16.5...25.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark is at start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 R
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 456 106
 Injection pump
 Pump designation : PES6MW100/321RS1190
 EP type number : 0 413 406 176
 Governor
 Governor design. : RQ250/1300MW84
 Governer no. : 0 420 082 029
 Cust. part no. : 3-7020
 Customer-spec. information
 Customer : MAN
 Engine : D 0826 LF
 1st version kW : 165.0
 Rated speed : 2600
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 15.00...0.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm : 14.90...15.00		
Del.quantity cm ³ /	: 13.3...13.5	
100 s: (13.1...13.7)		
Spread	cm ³	: 0.3
100 s: (0.6)		
2nd speed	rpm	: 250.0
Rack travel in mm : 5.4...5.6		
Del.quantity cm ³ /	: 1.9...2.3	
100 s: (1.6...2.5)		
Spread	cm ³	: 0.3
100 s: (0.5)		

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1440
travel mm : 8.70...9.10		
2nd speed	rpm	: 1360
travel mm : 6.30...6.50		
3rd speed	rpm	: 380
travel mm : 4.10...4.70		
4th speed	rpm	: 250
travel mm : 1.50...1.90		

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2

Speed	rpm	: 600
Rack travel in mm : 19.20...20.80		

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1000
Aneroid pressure h: 1000		
Del.quantity	: 133.0...135.0	
1000 : (131.0...137.0)		

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 33...41

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 13.90
Speed rpm : 1345...1360
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 250
Rack travel in mm : 5.40...5.60

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 180
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.90...12.00
2nd pressure hPa : 385
Rack travel in m: 13.70...14.00
3rd pressure hPa : 1000
Rack travel in m: 14.90...15.00

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 132.5...135.5
 1000 s: (130.0...138.0)
Spread cm³ : 5.00
 1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 134.0...137.0
 1000 s: (131.5...139.5)
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm³/ : 135.5...138.5
 1000 s: (133.0...141.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
 1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
 1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 19.0...23.0
 1000 s: (16.5...25.5)
Spread cm³ : 3.50
 1000 s: (5.50)

Remarks: : MAN # 3-7020
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 L
 Edition : 02.01.90
 Replaces : 27.10.88
 Test oil : ISO-4113

Combination no. : 0 403 456 107

Injection pump
 Pump designation : PES6MW100/321RS1153
 EP type number : 0 413 406 145
 Governor
 Governor design. : RQV250...1300MW83
 Governer no. : 0 420 083 139

Cust. part no. : 3-7021

Customer-spec. information
 Customer : MAN

Engine : D 0826 LF

1st version kW : 165.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 13.3...13.5

100 s: (13.1...13.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 4.8...5.0

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450
 travel mm : 9.40...9.80

2nd speed rpm : 1350
 travel mm : 8.40...8.60

3rd speed rpm : 500
 travel mm : 2.70...3.30

4th speed rpm : 250
 travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 133.0...135.0

1000 : (131.0...137.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 10.50
Speed rpm : 1345...1360
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 250
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 330...420

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 180
Rack travel mm : 9.40...9.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.00
2nd pressure hPa : 385
Rack travel in m: 10.80...11.10
3rd pressure hPa : 1000
Rack travel in m: 11.50...11.60

START CUT-OUT

Speed 1/min : 170 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ s: 130.0...133.0
1000 s: (127.5...135.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ s: 132.0...135.0
1000 s: (129.5...137.5)
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm³/ s: 132.5...135.5
1000 s: (130.0...138.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ s: 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark is at start of
delivery of cylinder 1

-

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C11
 Edition : 05.01.90
 Replaces : 07.02.89
 Test oil : ISO-4113

Combination no. : 0 403 466 110

Injection pump
 Pump designation : PES6MW100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV500...1250MW2A319.
 -6
 Governer no. : 0 420 085 102

Cust. part no. : 3915688

Customer-spec. information
 Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 171.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 017

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 13.4...13.6

100 s: (13.2...13.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 500.0
 Rack travel in mm : 6.5...6.7
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250
 Del.quantity : 134.0...136.0
 1000 : (132.0...138.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever
 position degrees: 50...58

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 11.80
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 6.00...6.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : C.D.C # 3915688
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C10
 Edition : 01.12.89
 Replaces : 22.12.88
 Test oil : ISO-4113

Combination no. : 0 403 466 112

Injection pump
 Pump designation : PES6MW100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV425...1100MW2A319
 -8
 Governer no. : 0 420 085 104

Cust. part no. : 3915970

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA-8.3 L

1st version kW : 188.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.10...14.20

Del.quantity cm³/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 7.7...7.9

Del.quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 142.0...144.0

1000 : (140.0...146.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 13.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 13.00
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 7.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 7.20...7.40
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL
Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.10...14.20
2nd speed rpm : 750
Rack travel in m: 14.70...14.80
3rd speed rpm : 900
Rack travel in m: 14.30...14.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 148.5...151.5
1000 s: (146.0...154.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 7.70...7.90
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : C.D.C # 3915970

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 H 2
 Edition : 13.10.89
 Replaces : 07.02.89
 Test oil : ISO-4113

Combination no. : 0 403 466 113

Injection pump
 Pump designation : PES6MW100/120RS1137-
 1

EP type number : 0 413 406 157

Governor
 Governor design. : RSV450...1100MW2A319
 -13

Governer no. : 0 420 085 114

Cust. part no. : 3195686

Customer-spec. information

Customer : CUMMINS/US

Engine : 6 CTA

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 9 410 270 183

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 15.0...15.2

100 s: (14.8...15.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 6.9...7.1
 Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750
 Del.quantity : 150.5...152.5
 1000 : (148.5...154.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
 position degrees: 42...50

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.50
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1370
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 7.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 6.90...7.10

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 14.00...14.10
2nd speed rpm : 1100
Rack travel in m: 12.50...12.70
3rd speed rpm : 950
Rack travel in m: 13.20...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100
Del.quantity cm³/ : 130.5...133.5
1000 s: (128.0...136.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 6.90...7.10
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C # 3195686

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C 8
 Edition : 01.12.89
 Replaces : 07.02.89
 Test oil : ISO-4113

Combination no. : 0 403 466 115

Injection pump
 Pump designation : PES6MW100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV400...1050MW2A319
 -11
 Governer no. : 0 420 085 107

Cust. part no. : 3915972

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA

1st version kW : 165.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 017

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.20...14.30

Del.quantity cm³/ : 15.1...15.3

100 s: (14.9...15.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 7.3...7.5
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750
 Del.quantity : 151.0...153.0
 1000 : (149.0...155.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever
 position degrees: 41...49

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1320
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.9

Testing:
Speed rpm : 100
Minimum rack trav: 19.00
Speed rpm : 400
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 490...560

TORQUE CONTROL
Dimension a mm : 2.10
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 14.20...14.30
2nd speed rpm : 1050
Rack travel in m: 12.20...12.40
3rd speed rpm : 950
Rack travel in m: 13.00...13.30

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1050
Del.quantity cm³/ : 123.5...126.5
1000 s: (121.0...129.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE
Speed rpm : 400
Rack travel in mm : 7.30...7.50
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : C.D.C # 3915972

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8/3 I
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 466 117

Injection pump
 Pump designation : PES6MW100/120RS1178
 EP type number : 0 413 406 160
 Governor
 Governor design. : RSV425...1250MW2A332
 Governer no. : 0 420 085 110

Cust. part no. : 3913734

Customer-spec. information
 Customer : CUMMINS/US

Engine : 6 CTA

1st version kW : 204.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.10...14.20

Del.quantity cm³/ : 15.5...15.7

100 s: (15.3...15.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 900

Del.quantity : 155.5...157.5

1000 : (153.5...159.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 13.10
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1405...1435
3rd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1650
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 525...585

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Rack travel mm : 10.80...11.00

Measurement
Speed 1/min : 500

1st pressure hPa : 325
Rack travel in m: 11.50...11.60
2nd pressure hPa : 505
Rack travel in m: 13.00...13.30
3rd pressure hPa : 900
Rack travel in m: 14.10...14.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 92.5...94.5
1000 s: (90.5...96.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (155.0...185.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : C.D.C. # 3913734

Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 E 3
 Edition : 05.01.90
 Replaces : 23.06.89
 Test oil : ISO-4113

Combination no. : 0 403 466 119

Injection pump
 Pump designation : PES6MW100/120RS1148
 EP type number : 0 413 406 143
 Governor
 Governor design. : RSV400...750MW7A319-
 14
 Governor no. : 0 420 085 120

Cust. part no. : 3914872

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA

1st version kW : 180.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 17.9...18.1

100 s: (17.7...18.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 179.5...181.5

1000 : (177.5...183.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 12.00
Speed rpm : 790...800
2nd rack travel in: 4.00
Speed rpm : 815...845
4th rack travel in: 1000
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack trav: 19.00
Speed rpm : 400
Rack travel in mm : 6.00...6.20

SET IDLE AUXILIARY SPRING
Rack travel in mm : 4.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 790..800

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: C.D.C. #3914872

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 H 3
 Edition : 02.10.89
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 403 466 120

 Injection pump
 Pump designation : PES6MW100/120RS1137-
 1
 EP type number : 0 413 406 157
 Governor
 Governor design. : RSV450...1100MW2A335
 Governer no. : 0 420 085 121

 Cust. part no. : 3915993

 Customer-spec. information
 Customer : CUMMINS

 Engine : 6 CTA

 1st version kW : 172.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 413 417 047

 Inlet press., bar : 1.50

 Test nozzle holder
 assembly : 1 688 901 017

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,6

 Test lines : 1 680 750 008

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 13.6...13.8

100 s: (13.4...14.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 136.5...138.5

1000 : (134.5...140.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 37...45

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1190...1220
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1250
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580

SET IDLE AUXILIARY SPRING
Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.70...12.80
2nd speed rpm : 750
Rack travel in m: 14.10...14.20
3rd speed rpm : 850
Rack travel in m: 14.10...14.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.90...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : 365
Rack travel in m: 11.80...11.90
2nd pressure hPa : 565

Rack travel in m: 13.30...13.60
3rd pressure hPa : 900
Rack travel in m: 14.10...14.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ 1000 s: 154.0...158.0
1000 s: (152.0...160.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 98.0...100.0
1000 s: (96.0...102.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ 1000 s: 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C # 3915993
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 N
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 466 121

Injection pump
 Pump designation : PES6MW100/120RS1184
 EP type number : 0 413 406 171
 Governor
 Governor design. : RSV375...1250MW2A334
 Governer no. : 0 420 085 122

Cust. part no. : 3280646

Customer-spec. information
 Customer : CUMMINS

Engine : 6 BTAA 5.9

1st version kW : 157.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 6.5...7.0
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 800

Del.quantity : 125.0...127.0
 1000 : (123.0...129.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.80
Speed rpm : 1295...1305
2nd rack travel in: 4.00
Speed rpm : 1370...1400
4th rack travel in: 1470
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 28...36
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 5.50...6.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.30...9.40

Measurement

Speed 1/min : 500

1st pressure hPa : 490
Rack travel in m: 10.20...10.30
2nd pressure hPa : 550
Rack travel in m: 10.40...10.70
3rd pressure hPa : 800
Rack travel in m: 10.80...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 80.0...82.0
1000 s: (78.0...84.0)
Spread cm³ : 5.00
1000 s: (7.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1295...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 6.50...7.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3280646

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C12
 Edition : 06.10.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 466 122
 Injection pump
 Pump designation : PES6MW100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV400...1250MW2A319
 -15
 Governor no. : 0 420 085 123
 Cust. part no. : 3917598
 Customer-spec. information
 Customer : CUMMINS
 Engine : 6 CTA
 1st version kW : 204.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 017
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 15.2...15.4
 100 s: (15.0...15.6)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 7.1...7.3
 Del.quantity cm³/ : 2.0...2.4
 100 s: (1.8...2.7)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 152.0...154.0
 1000 : (150.0...156.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever position degrees: 47...55

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 12.40
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1355...1385
3rd rack travel in: 4.00
Speed rpm : 1370...1400
4th rack travel in: 1500
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 500...560

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 146.5...149.5
1000 s: (144.0...152.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 7.10...7.30
Del.quantity cm³/ : 20.5...24.5
1000 s: (18.0...27.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: C.D.C # 3917598

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 Q
 Edition : 05.01.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 466 123

Injection pump
 Pump designation : PES6MW100/120RS1137-
 2

EP type number : 0 413 406 180

Governor
 Governor design. : RSV500...1250MW2A319
 -16

Governer no. : 0 420 085 130

Cust. part no. : 3918357

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA-8.3 L

1st version kW : 171.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 13.4...13.6

100 s: (13.2...13.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 134.0...136.0

1000 : (132.0...138.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.80
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 6.00...6.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.50...6.70

Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 4,5 M
 Edition : 02.01.90
 Replaces : 07.04.89
 Test oil : ISO-4113

 Combination no. : 0 403 474 007

 Injection pump
 Pump designation : PES4MW100/320RS1175
 EP type number : 0 413 404 105
 Governor
 Governor design. : RSV300...1000MW1A315
 -1
 Governer no. : 0 420 085 099

 Customer-spec. information
 Customer : VOLVO-BM

 Engine : TD45

 1st version kW : 84.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 047

 Inlet press., bar : 1.50

 Test nozzle holder
 assembly : 0 681 343 009

 Opening
 pressure, bar : 172...175

 Test Lines : 1 680 750 014

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values —

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

 Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.40...12.50

Del.quantity cm³/ : 10.5...10.7

100 s: (10.3...10.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.2...8.4

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 105.0...107.0

1000 : (103.0...109.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.40

Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1070...1100
3rd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.7

Testing:
Speed rpm : 100
Minimum rack trav: 19.00
Speed rpm : 300
Rack travel in mm : 7.60...7.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1000
Del.quantity cm³/ : 106.5...109.5
1000 s: (104.0...112.0)
Spread cm³ : 5.50
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.20...8.40
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 H
 Edition : 02.01.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 474 009
 Injection pump
 Pump designation : PES4MW100/720RS1187
 EP type number : 0 413 404 108
 Governor
 Governor design. : RSV300...1250MW5A337
 Governer no. : 0 420 085 128
 Customer-spec. information
 Customer : KHD
 Engine : BF 4L 913C
 1st version kW : 92.0
 Rated speed : 2500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.70...13.80

Del.quantity cm³/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm³/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1000

Del.quantity : 118.0...120.0

1000 : (116.0...122.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:
 1st rack travel in: 12.70
 Speed rpm : 1290...1300
 2nd rack travel in: 4.00
 Speed rpm : 1365...1395
 4th rack travel in: 1500
 Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
 position degrees: 18...26
Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 7.6
 Speed rpm : 300
 Rack travel in mm : 7.50...7.70

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
 1st speed rpm : 1250
 Rack travel in m: 13.70...13.80
 2nd speed rpm : 800
 Rack travel in m: 14.00...14.10
 3rd speed rpm : 900
 Rack travel in m: 13.90...14.00
 4th speed rpm : 1000
 Rack travel in m: 13.70...13.90

Aneroid/Altitude Compensator Test

1st version
Setting
 Speed rpm : 500
 Pressure hPa : -
 Rack travel mm : 11.70...11.80

Measurement
 Speed 1/min : 500

1st pressure hPa : 320
 Rack travel in m: 12.40...12.50
 2nd pressure hPa : 470
 Rack travel in m: 13.10...13.40
 3rd pressure hPa : 1000
 Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1000
 Speed rpm : 800
 Del.quantity cm³/ 1000 s: 113.5...116.5
 Spread cm³ : 3.50
 1000 s: (7.0)
 Aneroid pressure h: -

Speed rpm : 500
 Del.quantity cm³/ 1000 s: 66.0...68.0
 1000 s: (64.0...70.0)

BREAKAWAY
1st version
 1mm rack travel less than
 full load rack tr: 12.70
 Speed rpm : 1290...1300

STARTING FUEL DELIVERY
 •

Speed rpm : 100
 Del.quantity cm³/ 1000 s: 120.0...130.0
 1000 s: (117.0...133.0)

LOW IDLE
 Speed rpm : 300
 Rack travel in mm : 8.00...8.20
 Del.quantity cm³/ 1000 s: 12.0...16.0
 Spread cm³ : 3.50
 1000 s: (9.5...18.5)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 6,2 E
 Edition : 13.10.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 073
 Injection pump
 Pump designation : PES6MW80/320RS1104-1
 EP type number : 0 413 486 004
 Governor
 Governor design. : RSV300...1450MW0A801
 Governor no. : 0 420 085 067
 Customer-spec. information
 Customer : RVI
 Engine : 797 NFA
 1st version kW : 89.0
 Rated speed : 2900

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 2 417 413 028
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 173...176
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 1.75...1.85
 : (1.70...1.90)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 10.20...10.30
 Del.quantity cm³/ : 5.3...5.5
 100 s: (5.1...5.7)

Spread cm³ : 0.2
 100 s: (0.4)

2nd speed rpm : 300.0
 Rack travel in mm : 5.10...5.80
 Del.quantity cm³/ : 1.2...1.5
 100 s: (1.1...1.7)
 Spread cm³ : 0.2
 100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Del.quantity : 53.0...55.0
 1000 : (51.0...57.0)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever position degrees: 56...64

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 7.90
 Speed rpm : 1525...1535
 2nd rack travel in: 4.00
 Speed rpm : 1610...1640

4th rack travel in: 1700
Speed rpm : 0.00...1.00

Remarks:

:

LOW IDLE 1
Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.7
Speed rpm : 300
Rack travel in mm : 5.10...5.80
Speed rpm : 250
Maximum rack trave: 7.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 1450
Rack travel in m: 8.80...9.00
3rd speed rpm : 1050
Rack travel in m: 9.80...10.00
4th speed rpm : 1170
Rack travel in m: 9.30...9.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1450
Del.quantity cm³/ : 53.0...55.0
1000 s: (51.0...57.0)
Spread cm³ : 3.50
1000 s: (4.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 7.90
Speed rpm : 1525...1535

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 75.0...85.0
1000 s: (72.0...88.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.10...5.80
Del.quantity cm³/ : 12.5...15.5
1000 s: (11.0...17.0)
Spread cm³ : 2.00
1000 s: (3.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 P
 Edition : 15.12.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 476 074

Injection pump
 Pump designation : PES6MW100/320RS1183
 EP type number : 0 413 406 169
 Governor
 Governor design. : RSV300...750MW1A802
 Governer no. : 0 420 085 113

Cust. part no. : 2-7937

Customer-spec. information
 Customer : MAN

Engine : D0826LE20

1st version kW : 116.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 681 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 14.4...14.6

100 s: (14.2...14.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 5.7...6.4
 Del.quantity cm³/ : 3.0...3.4
 100 s: (2.8...3.6)
 Spread cm³ : 0.6
 100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700
 Del.quantity : 144.0...146.0
 1000 : (142.0...148.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever
 position degrees: 34...42

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.80
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 777...790
4th rack travel in: 950
Speed rpm : 030...1.70

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.70...6.40
Rack travel in mm : 2.00
Speed rpm : 310...370

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...135.0
1000 s: (122.0...138.0)

HIGH IDLE

1st version
Speed rpm : 782
Rack travel in mm : 4.00
Spread cm³ : 3.50
1000 s: (6.00)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.70...6.40
Del.quantity cm³/ : 30.0...34.0
1000 s: (28.5...36.5)
Spread cm³ : 6.00
1000 s: (9.00)

Remarks:

:

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 F
 Edition : 02.10.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 076
 Injection pump
 Pump designation : PES6MW100/720RS1120-1
 EP type number : 0 413 406 172
 Governor
 Governor design. : RSV350...1300MWOA2-1
 Governer no. : 0 420 085 125
 Customer-spec. information
 Customer : DB-NKW
 Engine : OM 366 LA
 1st version kW : 142.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 9.5...9.7
 100 s: (9.3...9.9)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 6.2...6.9
 Del.quantity cm³/ : 1.0...1.2
 100 s: (0.6...1.5)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 700
 Del.quantity : 95.0...97.0
 1000 : (93.0...99.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 106...114

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.00
 Speed rpm : 1340...1345
 2nd rack travel in: 4.00

Speed rpm : 1397...1410
3rd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1600
Speed rpm : 0.30...1.70
5th rack travel in: 1335...1350
Speed rpm : 12.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack trav: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 420...480

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.60...11.70

Measurement
Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 12.10...12.20
2nd pressure hPa : 360
Rack travel in m: 12.60...12.90
3rd pressure hPa : 700
Rack travel in m: 13.00...13.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 83.0...86.0
1000 s: (80.5...88.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 50.0...52.0
1000 s: (48.0...54.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 85.0...95.0
1000 s: (92.0...98.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90
Del.quantity cm3/ : 10.0...12.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:
:

Test hydr. locking device for starting with 800...1200 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 76
 Edition : 09.11.89
 Replaces : 15.08.89
 Test oil : ISO-4113

Combination no. : 0 403 476 077

Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1300MWOA3
 Governer no. : 0 420 085 126

Customer-spec. information
 Customer : DB-NKW

Engine : OM 366 LA

1st version kW : 127.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.60...11.70

Del.quantity cm³/ : 8.1...8.3

100 s: (7.9...8.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.9

Del.quantity cm³/ : 1.0...1.2

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del.quantity : 81.0...83.0

1000 : (79.0...85.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 103...111

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.60

Speed rpm : 1340...1345

2nd rack travel in: 4.00
Speed rpm : 1397...1410
3rd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.30...1.70
5th rack travel in: 1335...1350
Speed rpm : 10.60

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 440...500

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.60...11.70
2nd speed rpm : 900
Rack travel in m: 11.90...12.00

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 900
Del.quantity cm³/ : 76.0...79.0
1000 s: (73.5...81.5)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.60
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90

Del.quantity cm³/ : 10.0...12.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4D10
 Edition : 06.10.89
 Replaces : 11.03.88
 Test oil : ISO-4113
 Combination no. : 0 403 548 023
 Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQV300...1150MW56-3
 Governer no. : 0 420 083 154

Customer-spec. information

Customer : KHD
 Engine : BF 8L 513
 1st version kW : 225.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test Lines : 1 680 740 014

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 12.90...13.00
 Del.quantity cm³/ : 14.2...14.4
 100 s: (14.0...14.6)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.5...6.7
 Del.quantity cm³/ : 1.3...1.7
 100 s: (1.1...1.9)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1300
	travel mm	: 9.80...10.20
2nd speed	rpm	: 1220
	travel mm	: 8.80...9.00
3rd speed	rpm	: 600
	travel mm	: 3.90...4.50
4th speed	rpm	: 300
	travel mm	: 1.10...1.50

GUIDE SLEEVE POSITION

Control-lever position	Degree:	-1
Speed	rpm	: 1150
Rack travel in mm	:	15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1150
Aneroid pressure h:	1000	
Del.quantity	:	142.0...144.0
	1000	: (140.0...146.0)
Spread	cm ³	: 3.50
	1000	: (6.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:

1st rack travel in: 11.90
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1380
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:

Speed rpm : 100
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.50...6.70

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.90...13.00
2nd speed rpm : 700
Rack travel in m: 13.20...13.30
3rd speed rpm : 800
Rack travel in m: 13.00...13.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 660
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.90...12.00
2nd pressure hPa : 530
Rack travel in m: 12.20...12.50
3rd pressure hPa : 1000
Rack travel in m: 13.20...13.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 142.5...145.5
1000 s: (140.0...148.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm3/ : 107.0...109.0
1000 s: (105.0...111.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:
Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4D12
 Edition : 06.10.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 548 025
 Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQ300/1150MW63-3
 Governer no. : 0 420 082 030

Customer-spec. information

Customer : KHD
 Engine : BF 8L 513

1st version kW : 225.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test Lines : 1 680 740 014

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.90...13.00

Del.quantity cm³/

100 s: (14.0...14.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.5...6.7
 Del.quantity cm³/

100 s: (1.1...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1280
	travel mm	: 9.00...9.80
2nd speed	rpm	: 1220
	travel mm	: 6.60...6.80
3rd speed	rpm	: 650
	travel mm	: 5.70...6.30
4th speed	rpm	: 300
	travel mm	: 1.10...1.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1150
Aneroid pressure h:	1000	
Del.quantity		: 142.0...144.0
	1000	: (140.0...146.0)
Spread	cm ³	: 3.50
	1000	: (6.00)

RATED SPEED

1st version
Control lever
position degrees: 29...37

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 11.90
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:
Speed rpm : 100
Minimum rack trave: 8.20
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
Speed rpm : 320...400

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.90...13.00
2nd speed rpm : 700
Rack travel in m: 13.20...13.30
3rd speed rpm : 800
Rack travel in m: 12.00...13.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 660
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.90...12.00
2nd pressure hPa : 530
Rack travel in m: 12.20...12.50
3rd pressure hPa : 1000

Rack travel in m: 13.20...13.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm³/ : 142.5...145.5
1000 s: (140.0...148.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm³/ : 107.0...109.0
1000 s: (105.0...111.0)

BREAKAWAY

1st version
1mm rack travel Less than
full load rack tr: 11.90
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 14,3D13
 Edition : 13.10.89
 Replaces : 11.03.88
 Test oil : ISO-4113

Combination no. : 0 403 548 026

Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQ300/1150MW63-4
 Governer no. : 0 420 082 031

Customer-spec. information

Customer : KHD

Engine : BF 8L 513

1st version kW : 243.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ 100 s: (14.9...15.5)
 cm³ : 15.1...15.3

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.6...6.8
 Del.quantity cm³/ 100 s: (1.1...1.9)
 cm³ : 1.3...1.7
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1280
	travel mm	: 9.20...9.60
2nd speed	rpm	: 1220
	travel mm	: 6.60...6.80
3rd speed	rpm	: 420
	travel mm	: 4.20...4.80
4th speed	rpm	: 300
	travel mm	: 1.20...1.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1150
Aneroid pressure h:	1000	
Del.quantity		: 151.0...153.0
	1000	: (149.0...155.0)
Spread	cm ³	: 3.50
	1000	: (6.00)

RATED SPEED

1st version
Control lever
position degrees: 30...38

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.60
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1275...1310
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:
Speed rpm : 100
Minimum rack trave: 8.20
Speed rpm : 300
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION
Speed rpm : 320...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 710
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.80...11.9.
2nd pressure hPa : 530
Rack travel in m: 12.20...12.50
3rd pressure hPa : 1000
Rack travel in m: 13.60...13.70

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm³/ : 108.0...110.0
1000 s: (106.0...112.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4D16
 Edition : 06.10.89
 Replaces : 16.06.89
 Test oil : ISO-4113

Combination no. : 0 403 548 034

Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQ300/1150MW63-6
 Governer no. : 0 420 082 038

Customer-spec. information

Customer : KHD
 Engine : BF 8L 513

1st version kW : 243.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ 100 s: 15.1...15.3
 100 s: (14.9...15.5)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.6...6.8
 Del.quantity cm³/ 100 s: 1.3...1.7
 100 s: (1.1...1.9)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280
 travel mm : 9.70...10.30
 2nd speed rpm : 1210
 travel mm : 7.40...7.60
 3rd speed rpm : 650
 travel mm : 5.20...5.80
 4th speed rpm : 300
 travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 750
 Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 1000
 Del.quantity 1000 : 151.0...153.0
 1000 : (149.0...155.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Setting point:

Speed rpm : 750

Rack travel in mm : 15.5

Testing:

1st rack travel in: 12.60

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1275...1310

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.7

Testing:

Speed rpm : 100

Minimum rack trave: 8.20

Speed rpm : 300

Rack travel in mm : 6.60...6.80

Rack travel in mm : 2.00

Speed rpm : 500...540

CONSTANT REGULATION

Speed rpm : 320...400

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 710

Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.80...11.90

2nd pressure hPa : 530

Rack travel in m: 12.20...12.50

3rd pressure hPa : 1000

Rack travel in m: 13.60...13.70

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 450

Del.quantity cm³/ : 108.0...110.0

1000 s: (106.0...112.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 140.0...150.0

1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.60...6.80

Del.quantity cm³/ : 13.0...17.0

1000 s: (11.0...19.0)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 12,6 b
 Edition : 21.04.89
 Replaces : 1.66
 Test oil : ISO-4113

Combination no. : 0 405 048 204

Injection pump
 Pump designation : PE8AM80D310RS2004
 EP type number : 0 415 088 201
 Governor
 Governor design. : RQ200/1150AB314DL
 Governer no. : 0 420 202 091

Customer-spec. information
 Customer : KHD

Engine : F8L714A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1130

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 7.1...7.2

100 s: (6.9...7.3)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 200.0

Rack travel in mm : 7.4...7.6

Del.quantity cm³/ : 0.7...1.5

100 s: (0.5...1.6)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 500

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1130

Del.quantity : 71.0...72.0

1000 : (69.5...73.5)

Spread cm³ : 2.50

1000 : (4.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 500

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.50

Speed rpm : 1195...1210

2nd rack travel in: 4.00

Speed rpm : 1230...1260

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 200
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 200
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 270...310

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.50...10.60
2nd speed rpm : 500
Rack travel in m: 12.70...12.80
3rd speed rpm : 705
Rack travel in m: 12.30...12.50
4th speed rpm : 900
Rack travel in m: 11.70...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1030
Del.quantity cm³/ : 70.0...72.0
1000 s: (68.0...74.0)
Speed rpm : 600
Del.quantity cm³/ : 72.0...75.0
1000 s: (70.0...77.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 17,4 a
 Edition : 02.10.89
 Replaces : 2.11.87
 Test oil : ISO-4113

Combination no. : 0 405 638 201

Injection pump
 Pump designation : PE8PM120A120RS7119
 EP type number : 0 415 628 201
 Governor
 Governor design. : RQ350/1150PA791
 Governer no. : 0 421 801 340

Customer-spec. information
 Customer : PERKINS

Engine : MCY 80

1st version kW : 410.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 6- 5- 4- 8-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.60...13.70

Del.quantity cm³/

100 s: (25.4...26.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 4.8...5.0
 Del.quantity cm³/

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1200

Del.quantity : 257.0...259.0

1000 : (254.0...262.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 750

Rack travel in mm : 15.5

Testing:

1st rack travel in: 12.60
Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:

Speed rpm : 250
Minimum rack travel: 6.40
Speed rpm : 350
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 390...430

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 890
Rack travel in m: 12.90...13.00
3rd pressure hPa : 590
Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 300 (0)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm3/ : 259.0...265.0
1000 s: (256.0...268.0)
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 192.0...196.0
1000 s: (190.0...198.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 195.0...215.0
1000 s: (192.0...218.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MTU 37,4 C
 Edition : 18.1.89
 Replaces : 20.10.87
 Test oil : ISO-4113

Combination no. : D 406 039 111

Injection pump
 Pump designation : PE10ZWM160/120RS1043
 EP type number : 0 416 069 001
 Governor
 Governor design. : RQU425/1200ZWA68R
 Governer no. : 0 422 407 036

Customer-spec. information
 Customer : MTU

Engine : MB 838 KA

1st version kW : 100
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 40...45

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 443 022

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 016

Outside diameter
 x Wall thickness
 x Length mm : 8,00X2,00X1500

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.50...2.60
 : (2.45...2.65)
 Rack travel in mm : 12.00
 Firing order : 10-3-4-5-6-7-8-1-2-9

Phasing : 0-27-72-99-144-171-
 216-243-288-315
 Tolerance + - ° : 0.50(0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 15.00

Del.quantity cm³/ : 51.5...53.5

100 s: (51.0...54.0)

Spread cm³ : 1.5

100 s: (2.2)

2nd speed rpm : 1000

Rack travel in mm : 9.00

Del.quantity cm³/ : 26.5...28.5

100 s: (26.0...29.0)

Spread cm³ : 1.5

100 s: (2.2)

3rd speed rpm : 300

Rack travel in mm : 9.00

Del.quantity cm³/ : 15.0...18.0

100 s: (14.5...18.5)

Spread cm³ : 2.0

100 s: (3.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 18.00...18.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 505.0...515.0

1000 : (500.0...520.0)

Spread cm³ : 15.0

1000 : (22.0)

RATED SPEED

1st version

Control lever

position degrees: 52...58

Testing:

1st rack travel in: 15.00

Speed rpm : 1200

2nd rack travel in: 14.00

Speed rpm : 1225...1240

3rd rack travel in: 4.00
Speed rpm : 1312...1352
4th rack travel in: 1339...1389
Speed rpm : 0.01

Special-purpose vehicle

LOW IDLE 1
Control Lever
position degrees: 20...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 6.80

Testing:
Speed rpm : 200
Minimum rack trave: 18.00
Speed rpm : 300
Rack travel in mm : 12.60...16.60
Rack travel in mm : 6.80
Speed rpm : 425
Speed rpm : 1275
Maximum rack trave: 0.01
Rack travel in mm : 1.50
Speed rpm : 600...1200

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 1225...1240

HIGH IDLE

1st version
Rack travel in mm : 4.00
Spread cm³ : 12.0
1000 s: (-)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.80
Del.quantity cm³/ : 104.0...111.0
1000 s: (-)
Spread cm³ : 10.0
1000 s: (-)

Remarks:

:
Set idle stop at 425 min⁻¹ to a control-rod travel of 6.8 mm.

Limit shutoff stop screw to 1.0 mm.

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 6,1 a
 Edition : 23.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 030 432

Injection pump
 Pump designation : PES6A80D410RS1334
 Governor
 Governor design. : RSV325...1150A8B2134
 L

Customer-spec. information
 Customer : KHD

Engine : F6L 912

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00
 : (1,85...2,05)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del.quantity cm³/ : 4,40...4,60

100 s: (-)

Spread cm³ : 0,3

100 s: (-)

2nd speed rpm : 200

Rack travel in mm : 6,00

Del.quantity cm³/ : 0,2...0,8

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
 Del.quantity : 52,4...55,4
 1000 : (-)

RATED SPEED

1st version

Control lever
 position degrees: 50...58

Testing:

1st rack travel in: 8,00
 Speed rpm : 1190...1200
 2nd rack travel in: 5,50
 Speed rpm : 1220...1240
 4th rack travel in: 1450
 Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
 position degrees: 17...25
 Setting point w/out bumper spring
 Speed rpm : 325
 Rack travel in mm : 6,00

Testing:

Speed rpm : 200
Minimum rack trave: 19,00
Speed rpm : 325
Rack travel in mm : 5,80...6,20

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,70...9,90
3rd speed rpm : 750
Rack travel in m: 10,30
4th speed rpm : 600
Rack travel in m: 10,70...10,90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 52,4...55,4
1000 s: (49,4...58,4)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8,00
Speed rpm : 1190...1200

HIGH IDLE

1st version
Speed rpm : 1230
Rack travel in mm : 5,50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 2,6 a
 Edition : 24.11.89
 Replaces : 29.2.88
 Test oil : ISO-4113

Combination no. : 9 400 083 422

Injection pump
 Pump designation : PES3A80D320/3RS1264
 EP type number : 9 400 083 053
 Governor
 Governor design. : RSV350...1200A2B627R
 Governer no. : 9 420 082 194

Customer-spec. information
 Customer : MWM

Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.40...9.50

Del.quantity cm³/ : 5.0...5.1

100 s: (4.9...5.3)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : -

100 s: (-)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 50.5...51.5

1000 : (49.0...53.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.40

Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.40...9.50
2nd speed rpm : 500
Rack travel in m: 9.40...9.60
5th speed rpm : 400
Rack travel in m: 10.60...11.20

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 2,6 a 1
 Edition : 24.11.89
 Replaces : 29.2.88
 Test oil : ISO-4113

Combination no. : 9 400 083 423

Injection pump
 Pump designation : PES3A80D320/3RS1264
 EP type number : 9 400 083 053
 Governor
 Governor design. : RSV350...900A7B627R
 Governer no. : 9 420 082 193

Customer-spec. information
 Customer : MWM

Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : -

100 s: (-)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 975...980
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 11.40...12.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,4 b
 Edition : 24.11.89
 Replaces : 29.2.88
 Test oil : ISO-4113

Combination no. : 9 400 083 426

Injection pump
 Pump designation : PES4A80D320/3RS1265
 EP type number : 9 400 083 055
 Governor
 Governor design. : RSV350...1200A2B627R
 Governer no. : 9 420 082 194

Customer-spec. information
 Customer : MWM

Engine : D225-4

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.40...9.50

Del.quantity cm³/ : 5.0...5.1

100 s: (4.9...5.3)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : -

100 s: (-)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 50.5...51.5

1000 : (49.0...53.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.40

Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.40...9.50
2nd speed rpm : 500
Rack travel in m: 9.40...9.60
5th speed rpm : 400
Rack travel in m: 10.60...11.20

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,4 b 1
 Edition : 24.11.89
 Replaces : 1.3.88
 Test oil : ISO-4113

Combination no. : 9 400 083 427

Injection pump
 Pump designation : PES4A80D320/3RS1265
 EP type number : 9 400 083 055
 Governor
 Governor design. : RSV350...900A7B627R
 Governer no. : 9 420 082 193

Customer-spec. information
 Customer : MWM

Engine : D225-4

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : -

100 s: (-)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 975...980
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 11.40...12.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,1 a
 Edition : 24.11.89
 Replaces : 1.3.88
 Test oil : ISO-4113
 Combination no. : 9 400 083 429
 Injection pump
 Pump designation : PES6A80D320/3RS1261
 EP type number : 9 400 083 057
 Governor
 Governor design. : RSV350...900A7B627R
 Governer no. : 9 420 082 193
 Customer-spec. information
 Customer : MWM
 Engine : D225-6
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 012
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test Lines : 1 680 750 003
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BEGINNING OF DELIVERY DIFFERENCE
 betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00
BASIC SETTING
 1st speed rpm : 900
 Rack travel in mm : 10.20...10.30
 Del.quantity cm³/ : 5.1...5.2
 100 s: (5.0...5.4)
 Spread cm³ : 0.2
 100 s: (0.4)
 2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : -
 100 s: (-)
 Spread cm³ : 0.2
 100 s: (0.3)
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00
 Governor spring pre-tension
 Click setting x : 4.25
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 900
 Del.quantity : 51.5...52.5
 1000 : (50.0...54.0)
 Spread cm³ : 2.50
 1000 : (4.00)
RATED SPEED
 1st version
 Control lever
 position degrees: 50...58
Testing:
 1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 975...980
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 11.40...12.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,1 a 1
 Edition : 24.11.89
 Replaces : 1.3.88
 Test oil : ISO-4113

 Combination no. : 9 400 083 430

 Injection pump
 Pump designation : PES6A80D320/3RS1261
 EP type number : 9 400 083 057
 Governor
 Governor design. : RSV350...1200A2B627R
 Governer no. : 9 420 082 194

 Customer-spec. information
 Customer : MWM

 Engine : D225-6

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 012

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 003

 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

 Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

 Tolerance + - ° : 0.50 (0.75)

 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1200

 Rack travel in mm : 9.40...9.50

 Del.quantity cm³/ : 5.0...5.1
 100 s: (4.9...5.3)

Spread cm³ : 0.2
 100 s: (0.4)

2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : -
 100 s: (-)
 Spread cm³ : 0.2
 100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 50.5...51.5
 1000 : (49.0...53.0)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Testing:
 1st rack travel in: 8.40

Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.40...9.50
2nd speed rpm : 500
Rack travel in m: 9.40...9.60
5th speed rpm : 400
Rack travel in m: 10.60...11.20

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 g
 Edition : 02.05.89
 Replaces : 1.9.88
 Test oil : ISO-4113

 Combination no. : 9 400 085 248

 Injection pump
 Pump designation : PES6A95D412RS2709
 EP type number : 9 400 083 099
 Governor
 Governor design. : RQV350...1400AB1202-
 1L
 Governer no. : 9 420 080 220

 Customer-spec. information
 Customer : FORD (FTO)

 Engine : 6.6 1 NA

 1st version kW : 108.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 000

 Inlet press., bar : 1.50

 Test nozzle holder
 assembly : 0 681 343 009

 Opening
 pressure, bar : 172...175

 Test Lines : 1 680 750 008

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

 Prestroke mm : 3.15...3.25
 : (3.10...3.30)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

 Phasing : 0-60-120-180-240-300

 Tolerance + - ° : 0.50 (0.75)

 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

 betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 2.00...3.00

BASIC SETTING

 1st speed rpm : 1400

 Rack travel in mm : 10.70...10.80

 Del.quantity cm³/ : 7.9...8.0

 100 s: (7.7...8.2)

 Spread cm³ : 0.3

 100 s: (0.6)

 2nd speed rpm : 350.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm³/ : 0.7...1.1
 100 s: (0.5...1.3)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 1420
 travel mm : 8.50...8.60
 2nd speed rpm : 350
 travel mm : 1.30...1.60
 3rd speed rpm : 700
 travel mm : 4.20...4.60
 4th speed rpm : 1100
 travel mm : 6.10...6.40

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1420
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

 1st version

Speed rpm : 1400
Del.quantity : 79.0...80.0
1000 : (77.0...82.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 60...66

Testing:

1st rack travel in: 9.70
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1550...1580
4th rack travel in: 1720
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 460...530

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 70.0...73.0
1000 s: (67.5...75.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 112.0...122.0
1000 s: (-)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 7.0...11.0
1000 s: (5.0...13.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 j
 Edition : 24.11.89
 Replaces : 1.9.88
 Test oil : ISO-4113

Combination no. : 9 400 085 266

Injection pump
 Pump designation : PES6A95D410RS2751
 EP type number : 9 400 084 013
 Governor
 Governor design. : RSV650...1250A8C2231
 L
 Governer no. : 9 420 083 229

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6,6 L NA

1st version kW : 101.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
 : (3.10...3.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 6.00...7.00

BASIC SETTING

1st speed rpm : 1220

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 8.1...8.3

100 s: (7.8...8.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 650.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 0.7...1.1
 100 s: (0.4...1.3)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1220
 Del.quantity : 81.0...83.0

1000 : (78.5...85.5)
 Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:
1st rack travel in: 10.00
Speed rpm : 1265...1270
2nd rack travel in: 4.00
Speed rpm : 1295...1300
4th rack travel in: 1420
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 6.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 650
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 730...790

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 69.0...73.0
1000 s: (67.0...75.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1265...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 7.0...11.0
1000 s: (4.5...13.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
APPLICATION
Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 j 1
 Edition : 24.11.89
 Replaces : 1.9.88
 Test oil : ISO-4113

Combination no. : 9 400 085 267

Injection pump
 Pump designation : PES6A95D410RS2751
 EP type number : 9 400 084 013
 Governor
 Governor design. : RSV650...1250A8C2231
 -1L
 Governer no. : 9 420 083 230

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6,6 L TC

1st version kW : 112.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
 : (3.10...3.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 6.00...7.00

BASIC SETTING

1st speed rpm : 1220

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 9.1...9.3

100 s: (8.8...9.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 650.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 0.7...1.1

100 s: (0.4...1.3)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1220

Del.quantity : 91.0...93.0

1000 : (88.5...95.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 47...55

Testing:
1st rack travel in: 10.90
Speed rpm : 1265...1270
2nd rack travel in: 4.00
Speed rpm : 1300...1305
4th rack travel in: 1420
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 6.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 650
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 730...790

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 77.0...81.0
1000 s: (75.0...83.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1265...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 7.0...11.0
1000 s: (4.5...13.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
APPLICATION
Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 j 2
 Edition : 24.11.89
 Replaces : 1.9.88
 Test oil : ISO-4113

Combination no. : 9 400 085 299

Injection pump
 Pump designation : PES6A95D410RS2751
 EP type number : 9 400 084 013
 Governor
 Governor design. : RSV650...1250A8C2231
 -2L
 Governer no. : 9 420 083 236

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6,6 L TC

1st version kW : 123.8
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
 : (3.10...3.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 6.00...7.00

BASIC SETTING

1st speed rpm : 1220

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 9.8...10.0

100 s: (9.5...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 650.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 0.7...1.1
 100 s: (0.4...1.3)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1220
 Del.quantity : 98.0...100.0
 1000 : (95.5...102.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 47...55

Testing:

1st rack travel in: 11.50
Speed rpm : 1265...1270
2nd rack travel in: 4.00
Speed rpm : 1300...1305
4th rack travel in: 1420
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 650
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 730...790

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 83.0...87.0
1000 s: (81.0...89.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1265...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 7.0...11.0
1000 s: (4.5...13.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 g
 Edition : 24.11.89
 Replaces : 15.8.89
 Test oil : ISO-4113

 Combination no. : 9 400 085 305

 Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RQV300...1300AB1066-
 6L
 Governer no. : 9 420 080 265

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM 366 A

 1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 006

 Inlet press., bar : 1.50

 Test nozzle holder
 assembly : 0 681 343 009

 Opening
 pressure, bar : 172...175

 Test Lines : 1 680 750 015

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 11

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.40...10.50

Del.quantity cm³ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Testing:

1st rack travel in: 9.40
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1630
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.40...10.50
2nd speed rpm : 800
Rack travel in m: 10.90...11.00
4th speed rpm : 1000
Rack travel in m: 10.60...10.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 10.90...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 450

Rack travel in m: 10.50...10.60

3rd pressure hPa : 300

Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 800
Del.quantity cm³/ 1000 s: 86.0...89.0 (83.5...91.5)
Aneroid pressure h: 700
Speed rpm : 1000
Del.quantity cm³/ 1000 s: 88.0...91.0 (85.5...93.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 59.0...61.0 (57.0...63.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 95.0...115.0 (-)
Rack travel in mm : 14.50...14.70

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 f
 Edition : 24.11.89
 Replaces : 15.8.89
 Test oil : ISO-4113

 Combination no. : 9 400 085 307

 Injection pump
 Pump designation : PES4A95D410RS2774
 EP type number : 9 400 084 019
 Governor
 Governor design. : RQV300...1300AB1228-
 1L
 Governor no. : 9 420 080 268

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM 364 A

 1st version kW : 85.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 006

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test Lines : 1 680 750 015

 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

 Prestroke mm : 3.20...3.30
 : (3.15...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.60...10.70

Del.quantity cm³ : 9.0...9.2

100 s: (8.8...9.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³ : 0.6...1.2

100 s: (0.4...1.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 90.0...92.0

1000 : (88.0...94.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 9.60
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1470...1500
4th rack travel in: 1640
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

Speed rpm : 100
Minimum rack trav: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.60...10.70
2nd speed rpm : 800
Rack travel in m: 11.00...11.10
4th speed rpm : 1000
Rack travel in m: 10.80...11.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 410
Rack travel in m: 10.80...10.90
3rd pressure hPa : 310
Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 800
Del.quantity cm³/ 1000 s: 84.5...87.5
Aneroid pressure h: 700
Speed rpm : 1000
Del.quantity cm³/ 1000 s: 87.5...90.5
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 61.0...63.0
1000 s: (59.0...65.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 95.0...115.0
Rack travel in mm : 14.00...14.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 f 1
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 309
 Injection pump
 Pump designation : PES4A95D410RS2774
 EP type number : 9 400 084 019
 Governor
 Governor design. : RQV300...1400AB1065-
 18L
 Governer no. : 9 420 080 278
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM 364
 1st version kW : 66.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 006
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.08)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.30...9.40

Del.quantity cm³/ : 6.6...6.8

100 s: (6.4...7.0)

Spread cm³ : 0.3

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm³/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.3

100 s: (0.3)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 66.0...68.0

1000 : (64.0...70.0)

Spread cm³ : 3.50

1000 : (3.50)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8.30
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1515...1545
4th rack travel in: 1660
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 14...22

Testing:

Speed rpm : 100
Minimum rack trav: 8.50
Speed rpm : 300
Rack travel in mm : 7.10...7.30

CONSTANT REGULATION

Speed rpm : 450...580

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ 1000 s: 51.0...54.0
1000 s: (48.5...56.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 100.0...110.0
Rack travel in mm : 14.20...14.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 g 2
 Edition : 24.11.89
 Replaces : 15.8.89
 Test oil : ISO-4113

 Combination no. : 9 400 085 310

 Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RQV300...1300AB1066-
 8L
 Governer no. : 9 420 080 279

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM 366 LA

 1st version kW : 155.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 006

 Inlet press., bar : 1.50

 Test nozzle holder
 assembly : 0 681 343 009

 Opening
 pressure, bar : 172...175

 Test Lines : 1 680 750 015

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values —

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.08)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm	: 1300
Rack travel in mm	: 11.10...11.20
Del.quantity cm ³ /	: 9.8...10.0
100 s:	(9.6...10.2)
Spread cm ³	: 0.3
100 s:	(0.6)
2nd speed rpm	: 300.0
Rack travel in mm	: 6.9...7.1
Del.quantity cm ³ /	: 0.8...1.4
100 s:	(0.6...1.6)
Spread cm ³	: 0.3
100 s:	(0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm	: 300
travel mm	: 0.80...1.30
2nd speed rpm	: 500
travel mm	: 2.30...2.80
3rd speed rpm	: 750
travel mm	: 4.10...4.30
4th speed rpm	: 1500
travel mm	: 8.50...8.60

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1500
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm	: 1300
Aneroid pressure h:	700
Del.quantity	: 98.0...100.0
1000	: (96.0...102.0)
Spread cm ³	: 3.50
1000	: (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Testing:

1st rack travel in: 10.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1470...1500
4th rack travel in: 1640
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.40...9.70

2nd pressure hPa : 450

Rack travel in m: 10.60...10.70

3rd pressure hPa : 300

Rack travel in m: 9.90...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm³/ 1000 s: 86.0...89.0
1000 s: (83.5...91.5)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ 1000 s: 59.5...61.5
1000 s: (57.5...63.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 95.0...115.0
1000 s: (-)
Rack travel in mm : 14.50...14.70

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 a2
 Edition : 24.11.89
 Replaces : 7.7.89
 Test oil : ISO-4113
 Combination no. : 9 400 087 357
 Injection pump
 Pump designation : PE6P120A320RS3178
 EP type number : 0 411 826 752
 Governor
 Governor design. : RQV250...1025PA657-
 10
 Governer no. : 0 421 813 567
 Customer-spec. information
 Customer : VOLVO
 Engine : TD 122 FS
 1st version kW : 287.0
 Rated speed : 2050
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test Lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 700
 Rack travel in mm : 14.00...14.10
 Del.quantity cm³/ : 25.2...25.4
 100 s: (24.9...25.7)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 250.0
 Rack travel in mm : 4.8...5.1
 Del.quantity cm³/ : 1.8...2.3
 100 s: (1.5...2.5)
 Spread cm³ : 0.5
 100 s: (0.7)
**(B) Setting of injection pump
 with governor**
GUIDE SLEEVE TRAVEL
 1st speed rpm : 250
 travel mm : 1.10...1.30
 2nd speed rpm : 500
 travel mm : 4.10...4.90
 3rd speed rpm : 700
 travel mm : 6.30...6.70
 4th speed rpm : 900
 travel mm : 6.30...6.70
 5th speed rpm : 1025
 travel mm : 7.30...7.80
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1090
 Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 700

Aneroid pressure h: 1200
Del.quantity : 252.0...254.0
1000 : (249.0...257.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 13.00
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14

Testing:
Speed rpm : 100
Minimum rack trave: 6.40
Speed rpm : 250
Rack travel in mm : 4.80...5.10

CONSTANT REGULATION
Speed rpm : 250...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 14.00...14.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.20
2nd pressure hPa : 120
Rack travel in m: 10.20...10.30
3rd pressure hPa : 810
Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700

Del.quantity cm³/ : 163.0...165.0
1000 s: (160.0...168.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.10
Del.quantity cm³/ : 18.0...23.0
1000 s: (15.5...25.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 r 1
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 387

Injection pump
 Pump designation : PES5P120A720LS7174
 EP type number : 0 412 725 806
 Governor
 Governor design. : RQ300/1050PA774-2
 Governer no. : 0 421 801 450

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 A

1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm³/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.4...7.0
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 650

Del.quantity : 196.0...198.0

1000 : (193.0...201.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.40
 Speed rpm : 1095...1110
 2nd rack travel in: 4.00
 Speed rpm : 1160...1190
 4th rack travel in: 1300
 Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 6.7

Testing:

Speed rpm : 200
 Minimum rack trave: 8.70
 Speed rpm : 300
 Rack travel in mm : 6.40...7.00
 Rack travel in mm : 2.00
 Speed rpm : 485...525

TORQUE CONTROL

Dimension a mm : 0.40
 Torque control curve - 1st version
 1st speed rpm : 1050
 Rack travel in m: 14.40...14.60
 2nd speed rpm : 750
 Rack travel in m: 14.90...15.10

Aneroid/Altitude Compensator Test**1st version**

Setting
 Speed rpm : 600
 Pressure hPa : 650
 Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 250
 Rack travel in m: 12.20...12.40
 2nd pressure hPa : 400
 Rack travel in m: 13.50...13.70
 3rd pressure hPa : 750
 Rack travel in m: 14.20...14.30 *
 4th pressure hPa : 850
 Rack travel in m: 14.60...14.80
 5th pressure hPa : -
 Rack travel in m: 11.90...12.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS**1st version**

Aneroid pressure h: 1200
 Speed rpm : 1050
 Del.quantity cm3/ : 208.0...211.0
 1000 s: (205.0...214.0)
 Spread cm3 : 8.00
 1000 s: (12.0)

Aneroid pressure h: 1200
 Speed rpm : 750
 Del.quantity cm3/ : 216.0...220.0
 1000 s: (213.0...223.0)
 Spread cm3 : 8.00
 1000 s: (12.0)

Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm3/ : 150.0...152.0
 1000 s: (147.0...155.0)
 Spread cm3 : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.40
 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 220.0...240.0
 1000 s: (216.0...244.0)

Remarks:

:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 a 6
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 390

Injection pump
 Pump designation : PES6P120A720LS7114-3
 EP type number : 0 412 726 820
 Governor
 Governor design. : RQ300/1050PA911
 Governer no. : 0 421 801 476

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 257.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.40
2nd speed rpm : 1050
Rack travel in m: 13.60...13.80
3rd speed rpm : 700
Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.20...11.40
2nd pressure hPa : 600
Rack travel in m: 13.10...13.30
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *
4th pressure hPa : 1100
Rack travel in m: 13.90...14.10
5th pressure hPa : -
Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050

Del.quantity cm³/ s: 229.0...233.0
1000 s: (226.0...236.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm³/ s: 244.0...247.0
1000 s: (241.0...250.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 146.0...148.0
1000 s: (143.0...151.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11_1 b1
 Edition : 24.11.89
 Replaces : 2.5.89
 Test oil : ISO-4113
 Combination no. : 9 400 087 393
 Injection pump
 Pump designation : PE6P120A720RS7126
 EP type number : 0 412 626 815
 Governor
 Governor design. : RQV200...1000PA725-1
 Governer no. : 0 421 813 552
 Customer-spec. information
 Customer : SAAB SCANIA
 Engine : DSC 11 - 18
 1st version kW : 265.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm	: 5.00...5.10
	: (4.95...5.15)
Rack travel in mm	: 9.00...12.00
Firing order	: 1- 5- 3- 6- 2- 4
Phasing	: 0-60-120-180-240-300
Tolerance + - °	: 0.50 (0.75)
Time to cyl. no.	: 1
BASIC SETTING	
1st speed rpm	: 700
Rack travel in mm	: 14.10...14.20
Del.quantity cm ³ /	: 23.4...23.6
100 s:	(23.1...23.9)
Spread cm ³	: 0.6
100 s:	(0.9)
2nd speed rpm	: 225.0
Rack travel in mm	: 4.5...4.9
Del.quantity cm ³ /	: 1.5...1.9
100 s:	(-)
Spread cm ³	: 0.3
100 s:	(0.6)
(B) Setting of injection pump with governor	
GUIDE SLEEVE TRAVEL	
1st speed rpm	: 225
travel mm	: 1.20...1.60
2nd speed rpm	: 350
travel mm	: 2.40...3.00
3rd speed rpm	: 650
travel mm	: 4.40...5.00
4th speed rpm	: 1045
travel mm	: 8.40...8.60
5th speed rpm	: 1160
travel mm	: 9.90...10.30
GUIDE SLEEVE POSITION	
Control-lever position	
Degree:	-1
Speed rpm	: 1040
Rack travel in mm	: 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP	
1st version	
Speed rpm	: 700
Aneroid pressure h:	900

Del.quantity : 234.0...236.0
1000 : (231.0...239.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:

1st rack travel in: 13.10
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 100
Minimum rack trave: 6.10
Speed rpm : 225
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00
Speed rpm : 340...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 510
Rack travel in m: 13.00...13.10
3rd pressure hPa : 250
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm³/ : 223.0...231.0
1000 s: (221.0...233.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 150.0...154.0
1000 s: (148.0...156.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.50...4.70

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAT 10,5g11
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 408
 Injection pump
 Pump designation : PES6P100A720LS502
 EP type number : 9 400 087 050
 Governor
 Governor design. : RQV350...1000PA828-2
 Governer no. : 9 420 080 247

Customer-spec. information
 Customer : CATERPILLAR
 Engine : 3306 DIT.
 1st version kW : 140.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Test nozzle holder assembly : 1 688 901 017

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm : 10.60...10.70		
Del.quantity cm ³ /		
100 s: (12.0...12.6)		
Spread	cm ³	: 0.3
100 s: (0.6)		

2nd speed	rpm	: 350.0
Rack travel in mm : 6.4...6.6		
Del.quantity cm ³ /		
100 s: (1.0...1.9)		
Spread	cm ³	: 0.3
100 s: (0.5)		

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1055
travel mm : 8.50...8.60		
2nd speed	rpm	: 300
travel mm : 1.10...1.40		
3rd speed	rpm	: 500
travel mm : 3.40...3.70		
4th speed	rpm	: 700
travel mm : 5.20...5.50		
5th speed	rpm	: 900
travel mm : 6.80...7.00		

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed	rpm	: 1055
Rack travel in mm : 15.20...17.80		

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	Speed	rpm	: 1000
Aneroid pressure h: 500			

Del.quantity : 122.0...124.0
1000 : (120.0...126.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 64...72

Testing:

1st rack travel in: 9.70
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1120...1150
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 100
Minimum rack trave: 8.50
Speed rpm : 350
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 370...440

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 500
Rack travel mm : 10.60...10.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 145
Rack travel in m: 10.30...10.40
3rd pressure hPa : 75
Rack travel in m: 9.50...9.70

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

E07

Aneroid pressure h: 500
Speed rpm : 700
Del.quantity cm³/ 1000 s: 122.0...126.0
1000 s: (120.0...128.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ 1000 s: 94.0...96.0
1000 s: (92.0...98.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 157.0...177.0
1000 s: (153.0...181.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 g
 Edition : 24.11.89
 Replaces : 15.8.89
 Test oil : ISO-4113

Combination no. : 9 400 087 412

Injection pump
 Pump designation : PES6P120A720RS3228
 EP type number : 9 400 087 065
 Governor
 Governor design. : RQV350...1200PA863-7
 Governor no. : 9 420 080 270

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8L TC

1st version kW : 138.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 9 401 087 403

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...29

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 13.7...13.9

100 s: (13.5...14.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 350.0
 Rack travel in mm : 7.8...8.0
 Del.quantity cm³/ : 2.2...2.6
 100 s: (1.9...2.8)
 Spread cm³ : 0.4
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1360
 travel mm : 8.40...8.50
 2nd speed rpm : 1000
 travel mm : 5.50...5.90
 3rd speed rpm : 800
 travel mm : 4.40...4.80
 4th speed rpm : 500
 travel mm : 2.60...3.00
 5th speed rpm : 300
 travel mm : 0.90...1.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1490
 Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 700

Del.quantity : 137.5...139.5
1000 : (135.5...141.5)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:
1st rack travel in: 12.60
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1380...1410
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 12...20

Testing:
Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 350
Rack travel in mm : 7.80...8.00

CONSTANT REGULATION
Speed rpm : 390...460

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 13.60...13.70
2nd speed rpm : 750
Rack travel in m: 13.90...14.00
3rd speed rpm : 1050
Rack travel in m: 13.60...13.70
4th speed rpm : 900
Rack travel in m: 13.90...14.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.90...14.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.00...12.20
2nd pressure hPa : 325

Rack travel in m: 12.60...12.70
3rd pressure hPa : 400
Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm³/ : 119.0...123.0
1000 s: (117.0...125.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 71.0...75.0
1000 s: (69.0...77.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.80...8.00
Del.quantity cm³/ : 22.0...26.0
1000 s: (19.5...28.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

:
Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAT 7,0 g 5
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 414
 Injection pump
 Pump designation : PES4P100A720LS501
 EP type number : 9 400 087 051
 Governor
 Governor design. : RQV350...1100PA828-3
 Governer no. : 9 420 080 266

Customer-spec. information
 Customer : CATERPILLAR

Engine : 3304 DIT.
 1st version kW : 103.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 9 401 087 348
 Inlet press., bar : 2.00

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - " : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 11.10...11.20
 Del.quantity cm³/ : 12.9...13.1
 100 s: (12.7...13.3)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm³/ : 1.5...1.9
 100 s: (1.2...2.1)

Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 1150
 travel mm : 8.50...8.60
 2nd speed rpm : 350
 travel mm : 1.30...1.50
 3rd speed rpm : 500
 travel mm : 2.90...3.20
 4th speed rpm : 700
 travel mm : 4.50...4.80
 5th speed rpm : 900
 travel mm : 6.00...6.20

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 500

Del.quantity : 129.0...131.0
1000 : (127.0...133.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

1st rack travel in: 10.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 370...440

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 500
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.00...8.20
2nd pressure hPa : 290
Rack travel in m: 10.20...10.30
3rd pressure hPa : 125
Rack travel in m: 8.80...9.00

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 500
Speed rpm : 700
Del.quantity cm³/ 1000 s: 128.0...132.0
1000 s: (126.0...134.0)
Aneroid pressure h: -
Speed rpm : 1100
Del.quantity cm³/ 1000 s: 81.0...83.0
1000 s: (79.0...85.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 157.0...177.0
1000 s: (153.0...181.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 h
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 416

Injection pump
 Pump designation : PES6P110A720RS3226
 EP type number : 9 400 087 066
 Governor
 Governor design. : RQV350...1000PA863-8
 Governer no. : 9 420 080 271

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7,8 L TC
 1st version kW : 160.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 9 401 087 403

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 017

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test Lines : 1 468 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.55...4.65
 : (4.50...4.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.70...12.80

Del.quantity cm³/

100 s: (13.6...14.2)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 6.9...7.1
 Del.quantity cm³/ : 2.7...3.1
 100 s: (2.5...3.4)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200
 travel mm : 9.30...9.70
 2nd speed rpm : 1000
 travel mm : 6.90...7.10
 3rd speed rpm : 500
 travel mm : 2.20...3.00
 4th speed rpm : 350
 travel mm : 1.40...1.70
 5th speed rpm : 250
 travel mm : 0.50...1.10

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1220
 Rack travel in mm : 7.00...9.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 900

Del.quantity : 138.0...140.0
1000 : (136.0...142.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:

1st rack travel in: 11.70
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 100
Minimum rack trave: 12.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.70...12.80
2nd speed rpm : 700
Rack travel in m: 13.90...14.00
3rd speed rpm : 850
Rack travel in m: 13.20...13.40

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.60
2nd pressure hPa : 405
Rack travel in m: 11.30...11.40
3rd pressure hPa : 695

Rack travel in m: 13.00...13.30

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ 1000 s: 153.0...157.0
1000 s: (151.0...155.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 79.0...81.0
1000 s: (77.0...83.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 147.0...167.0
1000 s: (142.0...172.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm³/ 1000 s: 27.5...31.5
1000 s: (25.0...34.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Delivery-valve spring pre-tension
3.0...3.2 mm.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 v 1
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 423

Injection pump
 Pump designation : PES5P120A720LS7175
 EP type number : 0 412 725 807
 Governor
 Governor design. : RQ300/1050PA774-4
 Governer no. : 0 421 801 453

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 LA

1st version kW : 221.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 23.5...23.7

100 s: (23.2...24.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.6...5.9
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 235.0...237.0
 1000 : (232.0...240.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 5.60...5.90
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.00...13.20
2nd speed rpm : 750
Rack travel in m: 14.40...14.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 11.00...11.20
2nd pressure hPa : 450
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *
4th pressure hPa : 1125
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm³/ 1000 s: 228.0...231.0
1000 s: (225.0...234.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm³/ 1000 s: 250.0...254.0
1000 s: (247.0...257.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 146.0...148.0
1000 s: (143.0...151.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11.1 i
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 424

Injection pump
 Pump designation : PE6P120A720RS7020
 EP type number : 0 412 626 828
 Governor
 Governor design. : RQV200...1000PA539-8
 Governer no. : 0 421 813 635

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS 11 34

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 20.8...21.0

 100 s: (20.5...21.3)

Spread cm³ : 0.6

 100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.8...2.2

 100 s: (-)

Spread cm³ : 0.3

 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

 travel mm : 1.20...1.60

2nd speed rpm : 350

 travel mm : 2.30...2.90

3rd speed rpm : 650

 travel mm : 4.40...5.00

4th speed rpm : 1045

 travel mm : 8.40...8.60

5th speed rpm : 1150

 travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 208.0...210.0

 1000 : (205.0...213.0)

Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 11.90
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14

Testing:
Speed rpm : 100
Minimum rack trave: 6.20
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 350...410

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.90...13.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 520
Rack travel in m: 12.30...12.40
3rd pressure hPa : 320
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm³/ : 198.0...206.0
 1000 s: (196.0...208.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 151.0...155.0
 1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
 1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO diaphragm.

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 f 1
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 425

Injection pump
 Pump designation : PES6P120A720LS7181
 EP type number : 0 412 726 824
 Governor
 Governor design. : RQ300/1050PA911-1
 Governer no. : 0 421 801 481

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 294.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.20...15.40

Del.quantity cm³/ : 27.4...27.6

100 s: (27.1...27.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.8...6.2
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)

Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
 Aneroid pressure h: 1000
 Del.quantity : 274.0...276.0
 1000 : (271.0...279.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.50
2nd speed rpm : 1050
Rack travel in m: 14.90...15.10
3rd speed rpm : 850
Rack travel in m: 15.60...15.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.90...11.10
2nd pressure hPa : 700
Rack travel in m: 14.00...14.20
3rd pressure hPa : 1300
Rack travel in m: 15.40...15.60
4th pressure hPa : 1450
Rack travel in m: 15.90...16.10
5th pressure hPa : -
Rack travel in m: 10.00...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050

Del.quantity cm³/ 1000 s: 269.0...272.0 (266.0...275.0)
Spread cm³ : 8.00 1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 700
Del.quantity cm³/ 1000 s: 298.0...301.0 (295.0...304.0)
Spread cm³ : 8.00 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 143.0...145.0 (140.0...148.0)
Spread cm³ : 8.00 1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 250.0...270.0 (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a11
 Edition : 28.09.89
 Replaces : 2.5.89
 Test oil : ISO-4113

Combination no. : 9 400 230 089

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -3R
 Governer no. : 9 420 234 125

Customer-spec. information
 Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 129.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 9.5...9.7

100 s: (9.3...9.9)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 95.5...97.5

1000 : (93.5...99.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.60
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 445...505

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3911953

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 A13
 Edition : 17.01.1990
 replaces : -
 Calibrating oil : ISO4113

Injection pump : VE 4/12F1050 R123-4
 Type number : 0 460 424 010
 Customer Part-No. : 3 917 654

Customer-specific information
 Customer : CDC

Engine : 4 BT 390

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 016

Opening
 pressure bar : 207...210

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
 x Wall thickness : 2.0
 x Length mm : 840

Start of delivery
 Prestroke mm : 0.3
 (from BDC) : +0.02(0.04)

Start of delivery block
 Piston stroke mm: 2.00
 mm: +0.02(0.06)
 Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

Setting value mm: 2.3...2.7

Supply-pump pressure:

Speed 1/min: 900
 Setting value bar: 4.5...5.1

Full-load del. w/out charge press.:

Speed 1/min : 900
 Del.quantity cm³/
 1000H.: 85.0...86.0
 Dispersion cm³/ : 4.0
 1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
 Del.quantity cm³/
 1000H.: 18.5...24.5
 Dispersion cm³/ : 5.5
 1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1120
 Del.quantity cm³/
 1000H: 47.0...53.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed	1/min: 750
TD travel	mm: 1.2...2.0
	mm: (0.9...2.3)
2nd speed	1/min: 900
TD travel	mm: 2.3...2.7
	mm: (1.8...2.2)
3rd speed	1/min: 1050
TD travel	mm: 3.0...3.8
	mm: (2.7...4.1)

Supply-pump pressure characteristic:

1st speed	1/min: 750
Supply-pump pressure	bar: 3.9...4.5
2nd speed	1/min: 900
Supply-pump pressure	bar: 4.5...5.1
3rd speed	1/min: 1050
Supply-pump pressure	bar: 5.2...5.8

Overflow quantity at overflow valve:

1st speed 1/min: 400

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1050
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1185
Del.quantity cm³: 0.0...3.0
1000H.: -
2nd speed 1/min: 1140
Del.quantity cm³: 15.0...55.0
1000H.: -
3rd speed 1/min: 1120
Del.quantity cm³: 47.0...53.0
1000H.: (44.0...56.0)
4th speed 1/min: 1050
Del.quantity cm³: 79.5...82.5
1000H.: (78.0...84.0)
5th speed 1/min: 900
Del.quantity cm³: 85.0...86.0
1000H.: (82.5...88.5)
6th speed 1/min: 750
Del.quantity cm³: 84.5...88.5
1000H.: (82.5...90.5)
7th speed 1/min: 400
Del.quantity cm³: 82.5...90.5
1000H.: (80.5...92.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del.quantity cm³: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³: 18.5..24.5
1000H.: (14.5..28.5)
2nd speed 1/min: 450
Del.quantity cm³: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
ind. 1000H: 100.0

2nd speed 1/min: 200
max. 1000H : 85.0

Shutoff electromagnet:

Cut-in
min. voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5.0...5.4
MS	mm	:	1.3...1.7
SVS max.	mm	:	4.0
XK	mm	:	20.2...22.2
XL	mm	:	13.2...16.5

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 A12
 Edition : 16.01.1990
 replaces : -
 Calibrating oil : ISO 4113

 Injection pump : VE 4/12F1100 R123-5
 Type number : 0 460 424 011
 Customer Part-No. : 3 917 655

 Customer-specific information
 Customer : CDC

 Engine : 4 BT 390

 Power k: 60
 Speed 1/mi: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening pressure bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC) : +0.02(0.04)

Start of delivery block
Piston stroke mm: -
mm: -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
Setting value mm: 2.3...2.7

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4.3...4.9

Full-load del. w/out charge press.:

Speed 1/min : 900
 Del.quantity cm³/
1000H.: 70.5...71.5
 Dispersion cm³/ : 4.0
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
 Del.quantity cm³/
1000H.: 10.7...11.3
 Dispersion cm³/ : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1120
 Del.quantity cm³/
1000H: 52.0...58.0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 97.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed	1/min: 600
TD travel	mm: 0.4...1.2
	mm: (0.1...1.5)
2nd speed	1/min: 900
TD travel	mm: 2.3...2.7
	mm: (1.8...3.2)
3rd speed	1/min: 1100
TD travel	mm: 3.3...4.1
	mm: (3.0...4.4)

Supply-pump pressure characteristic:

1st speed	1/min: 400
Supply-pump pressure	bar: 2.1...2.7
2nd speed	1/min: 900

Supply-pump
pressure bar: 4.3...4.9
3rd speed 1/min: 1100
Supply-pump
pressure bar: 5.2...5.8

Overflow quantity at overflow valve:

1st speed 1/min: 400
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1100
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1230
Del.quantity cm³/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1160
Del.quantity cm³/: 15.0...55.0
1000H.: -
3rd speed 1/min: 1120
Del.quantity cm³/: 52.0...58.0
1000H.: (49.0...61.0)
4th speed 1/min: 1100
Del.quantity cm³/: 64.5...67.5
1000H.: (63.0...69.0)
5th speed 1/min: 900
Del.quantity cm³/: 70.5...71.5
1000H.: (68.0...74.0)
6th speed 1/min: 750
Del.quantity cm³/: 70.5...74.5
1000H.: (68.5...76.5)
7th speed 1/min: 400
Del.quantity cm³/: 61.5...69.5
1000H.: (59.5...71.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del.quantity cm³/: 0..3

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 8.0...14.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del.quantity cm³/: -
ind. 1000H: 100.0

2nd speed 1/min: 200
Del.quantity cm³/: -
max. 1000H: 85.0

Shutoff electromagnet:

Cut-in
min. voltage : 20
Rated voltage : 24

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5.1...5.4
MS	mm	:	1.4...1.6
SVS max.	mm	:	3.4
XK	mm	:	20.2...22.2
XL	mm	:	12.5...15.9

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 B3
 Edition : 17.01.1990
 replaces : -
 Calibrating oil : IS04113

Injection pump : VE 4/12F1400 R182
 Type number : 0 460 424 015
 Customer Part-No. : 3 917 642

Customer-specific information
 Customer : CDC

Engine : 4 BT-3.9

Power k: 78
 Speed 1/mi: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C

with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 016

Opening pressure bar : 207...210

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
 x Wall thickness : 2.0
 x Length mm : 840

Start of delivery
 Prestroke mm : 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.8
 mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
 Charge press. hPa: 750
 Setting value mm: 1.4...1.8

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 750
 Setting value bar: 4.7...5.3

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 750
 Del.quantity cm³/
 1000H.: 81.5...82.5
 Dispersion cm³/ : 4.0
 1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 64.0...65.0

Low-idle speed regulation:

Speed 1/min: 375
 Charge press. hPa: -
 Del.quantity cm³/
 1000H.: 20.0...26.0
 Dispersion cm³/ : 5.5
 1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1600
 Charge press. hPa: 750
 Del.quantity cm³/
 1000H: 22.0...28.0

Start:

Speed 1/min: 100
 Charge press. hPa: -
 mind cm³/1000H.: 97.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
 Charge press. hPa: 750
 TD travel mm: 0.6...1.4
 mm: (0.3...1.7)
 2nd speed 1/min: 1100

Charge press. hPa: 750	Del.quantity cm ³ /: 81.5...82.5
TD travel mm: 1.4...1.8	1000H.: (79.0...85.0)
	mm: (0.9...2.5)
3rd speed 1/min: 1250	7th speed 1/min: 900
Charge press. hPa: 750	Charge press. hPa: 750
TD travel mm: 2.1...2.9	Del.quantity cm ³ /: 82.5...86.5
	1000H.: (80.5...88.5)
Supply-pump pressure characteristic:	8th speed 1/min: 500
1st speed 1/min: 500	Charge press. hPa: -
Charge press. hPa: 750	Del.quantity cm ³ /: 64.0...65.0
Supply-pump	1000H.: (60.5...68.5)
pressure bar: 2.1...2.7	Zero delivery (stop):
2nd speed 1/min: 1100	Mech. shutoff:
Charge press. hPa: 750	Speed 1/min: 1400
Supply-pump	Del.quantity cm ³ /: 0..3
pressure bar: 4.7...5.3	1000H.: -
3rd speed 1/min: 1250	Electr. shutoff:
Charge press. hPa: 750	Speed 1/min: 375
Supply-pump	ELAB volt: -
pressure bar: 5.2...5.8	Del.quantity cm ³ /: 0.0...3.0
Overflow quantity at overflow valve:	max. 1000H.: -
1st speed 1/min: 500	Idle delivery:
Charge press. hPa: -	1st speed 1/min: 375
Overflow : 41...83	Del.quantity cm ³ /: 8.0...14.0
quantity cm ³ /10s: (26...98)	1000H.: 6.0...16.0
2nd speed 1/min: 1400	2nd speed 1/min: 450
Charge press. hPa: 750	Del.quantity cm ³ /: 0.0...4.0
Overflow : 55...138	1000H.: -
quantity cm ³ /10s: (40...153)	Automatic starting fuel delivery:
Delivery-quant. and breakaway char.:	1st speed 1/min: 130
1st speed 1/min: 750	Charge press. hPa: -
Charge-air pressure-setting	ind. 1000H: 97.0
point hPa: 300	2nd speed 1/min: 200
LDA stroke mm: 7.5	Charge press. hPa: -
Del.quantity cm ³ /: 77.5...78.5	max. 1000H : 85.5
	Shutoff electromagnet:
1000H.: (74.0...82.0)	Cut-in
2nd speed 1/min: 1750	min. voltage : 20.0
Charge press. hPa: 750	Rated voltage : 24.0
Del.quantity cm ³ /: 0.0...3.0	Mounting and assembly dimensions:
1000H.: -	Designation
3rd speed 1/min: 1600	K mm : -
Charge press. hPa: 750	KF mm : 5.2...5.5
Del.quantity cm ³ /: 22.0...28.0	MS mm : 1.3...1.7
1000H.: (19.0...31.0)	SVS max. mm : 4.6
4th speed 1/min: 1475	Remarks:
Charge press. hPa: 750	
Del.quantity cm ³ /: 54.5...62.5	
1000H.: (52.5...64.5)	
5th speed 1/min: 1400	
Charge press. hPa: 750	
Del.quantity cm ³ /: 72.0...75.0	
1000H.: (70.5...76.5)	
6th speed 1/min: 1100	
Charge press. hPa: 750	

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 D5
Edition : 17.01.1990
replaces : -
Calibrating oil : ISO4113

Injection pump : VE 4/12F1250 R230-1
Type number : 0 460 424 027
Customer Part-No. : 3 910 678

Customer-specific information
Customer : CDC

Engine : 4 BT 3.9 AUTO

Power k: 80
Speed 1/mi: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 52...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm: -
mm: -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.8...2.2

Supply-pump pressure:

Speed 1/min: 1110
Charge press. hPa: 1000
Setting value bar: 4.7...5.3

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 69.5...70.5
Dispersion cm³/ : 4.0
1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 36.5...37.5

Low-idle speed regulation:

Speed 1/min: 340
Charge press. hPa: -
Del.quantity cm³/
1000H.: 8.0...14.0
Dispersion cm³/ : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1330
Charge press. hPa: 1000
Del.quantity cm³/
1000H: 49.0...55.0

Start:

Speed 1/min: 100
Charge press. hPa: -
mind cm³/1000H.: 40.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
TD travel mm: 0.3...1.1
mm: (0.0...1.4)
2nd speed 1/min: 1100
Charge press. hPa: 1000

TD travel mm: 1.8...2.2
 mm: (1.3...2.7)
 3rd speed 1/min: 1200
 Charge press. hPa: 1000
 TD travel mm: 2.4...3.2
 mm: (2.1...3.5)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 2.1...2.7
 2nd speed 1/min: 1100
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.7...5.3
 3rd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump pressure bar: 5.4...6.0

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
 Charge-air pressure-setting point hPa: 400
 LDA stroke mm: 6.0
 Del.quantity cm³: 67.0...68.0
 1000H.: (63.5...71.5)
 2nd speed 1/min: 1500
 Charge press. hPa: 1000
 Del.quantity cm³: 0.0...3.0
 1000H.: -
 3rd speed 1/min: 1430
 Charge press. hPa: 1000
 Del.quantity cm³: 15.0...55.0
 1000H.: -
 4th speed 1/min: 1330
 Charge press. hPa: 1000
 Del.quantity cm³: 49.0...55.0
 1000H.: (46.0...58.0)
 5th speed 1/min: 1250
 Charge press. hPa: 1000
 Del.quantity cm³: 65.5...68.5
 1000H.: (64.0...70.0)
 6th speed 1/min: 1100
 Charge press. hPa: 1000

Del.quantity cm³: 66.5...69.5
 1000H.: (64.5...71.5)
 7th speed 1/min: 900
 Charge press. hPa: 1000
 Del.quantity cm³: 69.5...70.5
 1000H.: (67.0...73.0)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Del.quantity cm³: 73.5...81.5
 1000H.: -
 9th speed 1/min: 500
 Charge press. hPa: -
 Del.quantity cm³: 36.5...37.5
 1000H.: (33.0...41.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
 Del.quantity cm³: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 340
 ELAB volt: -
 Del.quantity cm³: 0.0...3.3
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 340
 Del.quantity cm³: 8.0...14.0
 1000H.: (5.0...17.0)
 2nd speed 1/min: 500
 Del.quantity cm³: 0.0...4.0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
 Charge press. hPa: -
 ind. 1000H: 40.0
 2nd speed 1/min: 380
 Charge press. hPa: -
 max. 1000H: 40.0

Shutoff electromagnet:

Cut-in
 min. voltage : 20.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
 K mm : -
 KF mm : 5.1...5.4

MS	mm : 1.1..1.35
SVS max.	mm : 2.2
XK	mm : 20.2...22.2
XL	mm : 11.9...15.3

Remarks:

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 N26
 Edition : 18.01.1990
 replaces : -
 Calibrating oil : ISO 4113

Injection pump : VE 4/12F1150 R231-1
 Type number : 0 460 424 029
 Customer Part-No. : 3 909 591

Customer-specific information
 Customer : CDC

Engine : 4 BT 3.9

Power k: 82
 Speed 1/mi: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening pressure bar : 250...253

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
 x Wall thickness : 2.0
 x Length mm : 840

Start of delivery
 Prestroke mm : 0.3
 (from BDC) : +0.02

Start of delivery block
 Piston stroke mm: 1.55
 mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 850
 Charge press. hPa: 1000
 Setting value mm: 4.0...4.4

Supply-pump pressure:

Speed 1/min: 850
 Charge press. hPa: 1000
 Setting value bar: 5.6...6.2

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del.quantity cm³/
 1000H.: 85.5...86.5
 Dispersion cm³/ : 4.0
 1000H. : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 63.5...64.5

Low-idle speed regulation:

Speed 1/min: 375
 Charge press. hPa: -
 Del.quantity cm³/
 1000H.: 8.0...14.0
 Dispersion cm³/ : 5.5
 1000H. : (7.0)

Full-load speed regulation:

Speed 1/min: 1220
 Charge press. hPa: 1000
 Del.quantity cm³/
 1000H. : 62.5...68.5

Start:

Speed 1/min: 100
 Charge press. hPa: -
 mind cm³/1000H.: 60.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500*
 Charge press. hPa: 1000
 TD travel mm: 1.8...2.6*
 mm: (1.5...2.9)
 2nd speed 1/min: 850

Charge press. hPa: 1000
 TD travel mm: 4.0...4.4
 mm: (3.5...4.9)
 3rd speed 1/min: 1150
 Charge press. hPa: 1000
 TD travel mm: 5.2...6.0
 mm: (4.9...6.3)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.0...4.6
 2nd speed 1/min: 850
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.6...6.2
 3rd speed 1/min: 1150
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 6.9...7.5

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 1150
 Charge press. hPa: 1000
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
 Charge-air pressure-setting
 point hPa: 350
 Del.quantity cm³/: 79.5...80.5
 1000H.: (76.0...84.0)
 2nd speed 1/min: 1320
 Charge press. hPa: 1000
 Del.quantity cm³/: 0.0...3.0
 1000H.: -
 3rd speed 1/min: 1260
 Charge press. hPa: 1000
 Del.quantity cm³/: 15.0...55.0
 1000H.: -
 4th speed 1/min: 1220
 Charge press. hPa: 1000
 Del.quantity cm³/: 62.5...68.5
 1000H.: (59.5...71.5)
 5th speed 1/min: 1150
 Charge press. hPa: 1000
 Del.quantity cm³/: 76.0...79.0
 1000H.: (74.5...80.5)
 6th speed 1/min: 1000
 Charge press. hPa: 1000

Del.quantity cm³/: 79.5...82.5
 1000H.: (77.5...84.5)
 7th speed 1/min: 850
 Charge press. hPa: 1000
 Del.quantity cm³/: 85.5...86.5
 1000H.: (83.0...89.0)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Del.quantity cm³/: 90.0...98.0
 1000H.: -
 9th speed 1/min: 500
 Charge press. hPa: -
 Del.quantity cm³/: 63.5...64.5
 1000H.: (60.0...68.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1150
 Del.quantity cm³/: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 375
 ELAB volt: -
 Del.quantity cm³/: 0.0...3.0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
 Del.quantity cm³/: 8.0...14.0
 1000H.: (6.0...16.0)
 2nd speed 1/min: 450
 Del.quantity cm³/: 0.0...4.0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
 Charge press. hPa: -
 ind. 1000H: 60.0
 2nd speed 1/min: 230
 Charge press. hPa: -
 max. 1000H: 60.0

Shutoff electromagnet:

Cut-in
 min. voltage : 20.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
 K mm : -
 KF mm : 5.0...5.4

MS mm : 1,0...1,4

Remarks:

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 P
 Edition : 17.01.90
 replaces : 20.10.89
 Calibrating oil : ISO 4113

Injection pump : VE 4/12F1250 R359
 Type number : 0 460 424 054

Customer-specific information
 Customer : CDC

Engine : 4 BTA

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C

with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 pressure bar : 250...253

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Start of delivery block
 Piston stroke mm: 1.25
 mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
 Charge press. hPa: 1000

Setting value mm: 2.0...2.4

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 1000
 Setting value bar: 5.3...5.9

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del.quantity cm³/
 1000H.: 83.0...84.0
 Dispersion cm³/ : 4.0
 1000H.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 53.0...54.0

Low-idle speed regulation:

Speed 1/min: 375
 Charge press. hPa: -
 Del.quantity cm³/
 1000H.: 10.0...12.0
 Dispersion cm³/ : 5.5
 1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1330
 Charge press. hPa: 1000
 Del.quantity cm³/
 1000H.: 68.0...74.0

Start:

Speed 1/min: 100
 Charge press. hPa: -
 Del.quantity : -
 mind cm³/1000H.: 80.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 400
 Charge press. hPa: -
 TD travel mm: 2.9...3.9
 mm: -
 KSB solenoid-operated
 valve volt: -
 2nd speed 1/min: 1000
 Charge press. hPa: 1000

TD travel mm: 1.9...1.7
 mm: (0.6...2.0)
 KSB solenoid-operated valve volt: 12
 3rd speed 1/min: 1100
 Charge press. hPa: 1000
 TD travel mm: 2.0...2.4
 mm: (1.5...2.9)
 KSB solenoid-operated valve volt: 12
 4th speed 1/min: 1250
 Charge press. hPa: 1000
 TD travel mm: 2.8...3.6
 mm: (2.5...3.9)
 KSB solenoid-operated valve volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 2.6...3.2
 KSB solenoid-operated valve volt: 12
 2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.9...5.5
 KSB solenoid-operated valve volt: 12
 3rd speed 1/min: 1100
 Charge press. hPa: 1000
 Supply-pump pressure bar: 5.3...5.9
 4th speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.0...6.6

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 KSB solenoid-operated valve volt: 12
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 KSB solenoid-operated valve volt: 12
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
 Charge-air pressure-setting point hPa: 535

KSB solenoid-operated valve volt: 12
 Del.quantity cm³/: 71.5...72.5
 1000H.: (68.0...76.0)
 2nd speed 1/min: 1450
 Charge press. hPa: 1000
 KSB solenoid-operated valve volt: 12
 Del.quantity cm³/: 0.0...3.0
 1000H.: -
 3rd speed 1/min: 1430
 Charge press. hPa: 1000
 KSB solenoid-operated valve volt: 12
 Del.quantity cm³/: 15.0...45.0
 1000H.: -
 4th speed 1/min: 1330
 Charge press. hPa: 1000
 KSB solenoid-operated valve volt: 12
 Del.quantity cm³/: 68.0...74.0
 1000H.: (65.0...77.0)
 5th speed 1/min: 1250
 Charge press. hPa: 1000
 KSB solenoid-operated valve volt: 12
 Del.quantity cm³/: 76.5...79.5
 1000H.: (75.0...81.0)
 6th speed 1/min: 1100
 Charge press. hPa: 1000
 KSB solenoid-operated valve volt: 12
 Del.quantity cm³/: 77.5...80.5
 1000H.: (75.5...82.5)
 7th speed 1/min: 850
 Charge press. hPa: 1000
 KSB solenoid-operated valve volt: 12
 Del.quantity cm³/: 83.0...84.0
 1000H.: (80.5...86.5)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 KSB solenoid-operated valve volt: 12
 Del.quantity cm³/: 53.0...54.0
 1000H.: (49.5...57.5)
 9th speed 1/min: 500
 Charge press. hPa: -
 KSB solenoid-operated valve volt: 12
 Del.quantity cm³/: 94.0...104.0
 1000H.: -

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
 Del.quantity cm³/: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 10.0..12.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 0.0...2.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: -
ind. 1000H: 80.0

2nd speed 1/min: 250
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: -
max. 1000H : 40.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm : 3.6...3.8
KF mm : K-OT
MS mm : 0.8...1.2
SVS max. mm : 2.1

Remarks:
: C.D.C. # 391 7535

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 N30
 Edition : 18.01.1990
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE 4/12F1050 R388
 Type number : 0 460 424 064

Customer-specific information
 Customer : CDC

Engine : 4 BT 3.9

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 016

Opening
 pressure bar : 207...210

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
 x Wall thickness : 2.0
 x Length mm : 840

Start of delivery
 Prestroke mm : 0.3
 (from BDC) : +0.02(0.04)

Start of delivery block
 Piston stroke mm: 2.0
 mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
 Setting value mm: 2.3...2.7

Supply-pump pressure:

Speed 1/min: 900
 Setting value bar: 4.5...5.1

Full-load del. w/out charge press.:

Speed 1/min : 900
 Del.quantity cm³/
 1000H.: 64.5...65.5
 Dispersion cm³/ : 4.0
 1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 420
 Del.quantity cm³/
 1000H.: 18.5...24.5
 Dispersion cm³/ : 5.5
 1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1110
 Del.quantity cm³/
 1000H.: 32.0...38.0

Start:

Speed 1/min: 100
 mind cm³/1000H.: 100.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed	1/min: 750
TD travel	mm: 1.1...1.9
	mm: (0.8...2.2)
2nd speed	1/min: 900
TD travel	mm: 2.3...2.7
	mm: (1.8...3.2)
3rd speed	1/min: 1050
TD travel	mm: 3.2...4.0
	mm: (2.9...4.3)

Supply-pump pressure characteristic:

1st speed	1/min: 750
Supply-pump pressure	bar: 3.8...4.4
	bar: (3.6...4.6)
2nd speed	1/min: 900
Supply-pump pressure	bar: 4.5...5.1
	bar: (4.3...5.3)
3rd speed	1/min: 1050

Supply-pump
pressure bar: 4.9...5.5
 bar: (4.7...5.7)

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1050
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1160
Del.quantity cm³/: 0.0...3.0
 1000H.: -
2nd speed 1/min: 1110
Del.quantity cm³/: 32.0...38.0
 1000H.: (29.0...41.0)
3rd speed 1/min: 1050
Del.quantity cm³/: 59.5...62.5
 1000H.: (58.0...64.0)
4th speed 1/min: 900
Del.quantity cm³/: 64.5...65.5
 1000H.: (62.0...68.0)
5th speed 1/min: 750
Del.quantity cm³/: 64.0...68.0
 1000H.: (62.0...70.0)
6th speed 1/min: 500
Del.quantity cm³/: 58.0...66.0
 1000H.: (56.0...68.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del.quantity cm³/: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 420
Del.quantity cm³/: 18.5..24.5
 1000H.: (16.5..26.5)
2nd speed 1/min: 500
Del.quantity cm³/: 0.0...4.0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
ind. 1000H: 100.0

2nd speed 1/min: 200
max. 1000H : 105.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5.0...5.4
MS	mm	:	1.3...1.7
SVS max.	mm	:	4.2

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 N31
 Edition : 18.01.1990
 replaces : -
 Calibrating oil : ISO 4113

 Injection pump : VE 4/12F1050 R389
 Type number : 0 460 424 065

 Customer-specific information
 Customer : CDC

 Engine : 4 BT-390

 Power k: 81
 Speed 1/mi: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

 Inlet press., bar : 0.35

 Calibrating nozzle-holder
 assembly : 1 688 901 027

 Opening
 pressure bar : 250...253

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
 x Wall thickness : 2.0
 x Length mm : 840

Start of delivery
 Prestroke mm : 0.3
 (from BDC): +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.55
 mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
 Charge press. hPa: 1000
 Setting value mm: 3.4...3.8
 KSB solenoid-operated
 valve volt: 12

Supply-pump pressure:

Speed 1/min: 750
 Charge press. hPa: 1000
 Setting value bar: 5.0...5.6
 KSB solenoid-operated
 valve volt: 12

Full-load del. with charge press.:

Speed 1/min: 750
 Charge press. hPa: 1000
 Del.quantity cm³/
 1000H.: 89.5...90.5
 KSB solenoid-operated
 valve volt: 12
 Dispersion cm³/ : 4.0
 1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 63.5...64.5
 KSB solenoid-operated
 valve volt: 12

Low-idle speed regulation:

Speed 1/min: 375
 Charge press. hPa: -
 Del.quantity cm³/
 1000H.: 8.0...14.0
 KSB solenoid-operated
 valve volt: 12
 Dispersion cm³/: 5.5
 1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1100
 Charge press. hPa: 1000
 Del.quantity cm³/
 1000H: 59.0...65.0
 KSB solenoid-operated
 valve volt: 12

Start:

Speed 1/min: 100
 Charge press. hPa: -
 mind cm³/1000H.: 60.0

KSB solenoid-operated
valve volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
TD travel mm: 1.7...2.5
mm: (1.4...2.8)

KSB solenoid-operated
valve volt: 12
2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 3.4...3.8
mm: (2.9...4.3)

KSB solenoid-operated
valve volt: 12
3rd speed 1/min: 1050
Charge press. hPa: 1000
TD travel mm: 4.7...5.5
mm: (4.4...5.8)

KSB solenoid-operated
valve volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.9...4.5

2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.0...5.6

KSB solenoid-operated
valve volt: 12
3rd speed 1/min: 1050
Charge press. hPa: 1000

Supply-pump
pressure bar: 6.3...6.9

KSB solenoid-operated
valve volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
Overflow : 41...83

quantity cm³/10s: (26...98)
2nd speed 1/min: 1050
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12

Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 350
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 79.5...80.5
1000H.: (76.0...84.0)

2nd speed 1/min: 1180
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 0.0...3.0
1000H.: -

3rd speed 1/min: 1120
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 15.0...45.0
1000H.: -

4th speed 1/min: 1100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 59.0...65.0
1000H.: (56.0...68.0)

5th speed 1/min: 1050
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 76.5...79.5
1000H.: (75.0...81.0)

6th speed 1/min: 900
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 79.5...87.5
1000H.: -

7th speed 1/min: 750
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 89.5...90.5
1000H.: (87.0...93.0)

8th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 63.5...64.5
1000H.: (60.0...68.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050

Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 8.0...14.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
ind. 1000H: 60.0

2nd speed 1/min: 230
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
max. 1000H : 60.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5.0...5.4
MS mm : 1.0...1.4
SVS max. mm : 2.2

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 N32
 Edition : 17.01.1990
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE 4/12F1200 R390
 Type number : 0 460 424 067

Customer-specific information
 Customer : CDC

Engine : 4 BTA 3.9

Power k: 92
 Speed 1/mi: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening pressure bar : 250...253

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
 x Wall thickness : 2.0
 x Length mm : 840

Start of delivery
 Prestroke mm : 0.3
 (from BDC) : +0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.95
 mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
 Charge press. hPa: 1000
 Setting value mm: 2.2...2.6

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 1000
 Setting value bar: 5.7...6.3

Full-load del. with charge press.:

Speed 1/min: 750
 Charge press. hPa: 1000
 Del.quantity cm³/
 1000H.: 82.0...83.0
 Dispersion cm³/ : 4.0
 1000H. : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 55.5...56.5

Low-idle speed regulation:

Speed 1/min: 400
 Charge press. hPa: -
 Del.quantity cm³/
 1000H.: 4.0...6.0
 Dispersion cm³/ : 5.5
 1000H. : (7.0)

Full-load speed regulation:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del.quantity cm³/
 1000H: 48.5...54.5

Start:

Speed 1/min: 100
 Charge press. hPa: -
 mind cm³/1000H.: 70.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 850
 Charge press. hPa: 1000
 TD travel mm: 0.7...1.5
 mm: (0.4...1.8)
 2nd speed 1/min: 1100
 Charge press. hPa: 1000

TD travel	mm: 2.2...2.6 mm: (1.7...3.1)	6th speed 1/min: 1100 Charge press. hPa: 1000 Del.quantity cm ³ /: 77.0...80.0 1000H.: (75.0...82.0)
3rd speed	1/min: 1250	7th speed 1/min: 750 Charge press. hPa: 1000 Del.quantity cm ³ /: 82.0...83.0 1000H.: (79.5...85.5)
Charge press.	hPa: 1000	8th speed 1/min: 500 Charge press. hPa: 1000 Del.quantity cm ³ /: 94.0...104.0 1000H.: -
TD travel	mm: 2.8...3.6 mm: (2.5...3.9)	9th speed 1/min: 500 Charge press. hPa: - Del.quantity cm ³ /: 55.5...56.5 1000H.: (52.0...60.0)
Supply-pump pressure characteristic:		
1st speed	1/min: 500	Zero delivery (stop):
Charge press.	hPa: 1000	Mech. shutoff:
Supply-pump	pressure bar: 3.2...3.8	Speed 1/min: 1400 Del.quantity cm ³ /: 0..3 1000H.: -
2nd speed	1/min: 850	Electr. shutoff:
Charge press.	hPa: 1000	Speed 1/min: 400 ELAB volt: - Del.quantity cm ³ /: 0.0...3.0 max. 1000H.: -
Supply-pump	pressure bar: 4.7...5.3	Idle delivery:
3rd speed	1/min: 1100	1st speed 1/min: 400 Del.quantity cm ³ /: 4.0...6.0 1000H.: (0.0...10.0)
Charge press.	hPa: 1000	2nd speed 1/min: 450 Del.quantity cm ³ /: 0.0...4.0 1000H.: -
Supply-pump	pressure bar: 5.7...6.3	Automatic starting fuel delivery:
4th speed	1/min: 1250	1st speed 1/min: 230 Charge press. hPa: - ind. 1000H: 80.0
Charge press.	hPa: 1000	2nd speed 1/min: 400 Charge press. hPa: - max. 1000H : 80.0
Supply-pump	pressure bar: 6.3...6.9	Shutoff electromagnet:
Overflow quantity at overflow valve:		
1st speed	1/min: 500	Cut-in
Charge press.	hPa: -	min. voltage : 10.0
Overflow	: 41...83	Rated voltage : 12.0
quantity cm ³ /10s:	(26...98)	Mounting and assembly dimensions:
2nd speed	1/min: 1400	Designation
Charge press.	hPa: 1000	
Overflow	: 55...138	
quantity cm ³ /10s:	(40...153)	
Delivery-quant. and breakaway char.:		
1st speed	1/min: 700	
Charge-air pressure-setting		
point	hPa: 330	
Del.quantity	cm ³ /: 64.5...65.5	
	1000H.: (61.0...69.0)	
2nd speed	1/min: 1640	
Charge press.	hPa: 1000	
Del.quantity	cm ³ /: 0.0...3.0	
	1000H.: -	
3rd speed	1/min: 1560	
Charge press.	hPa: 1000	
Del.quantity	cm ³ /: 15.0...45.0	
	1000H.: -	
4th speed	1/min: 1500	
Charge press.	hPa: 1000	
Del.quantity	cm ³ /: 48.5...54.5	
	1000H.: (45.5...57.5)	
5th speed	1/min: 1400	
Charge press.	hPa: 1000	
Del.quantity	cm ³ /: 71.0...74.0	
	1000H.: (69.5...75.5)	

K mm : K-OT
MS mm : 1.0...1.4
SVS max. mm : 1.2

Remarks:

Overflow restriction 0.75 mm - Part No.
.343,..344

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5.9 U40
 Edition : 17.01.1990
 replaces : -
 Calibrating oil : ISO 4113

Injection pump : VE 6/12F1325 R198
 Type number : 0 460 426 063
 Customer Part-No. : 3 908 203

Customer-specific information
 Customer : CDC
 Engine : 6 BT 5.9

Power k: 97
 Speed 1/mi: 2650

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening pressure bar : 250...253

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 688 750 017

Outside diameter : 6.0
 x Wall thickness : 2.0
 x Length mm : 840

Start of delivery
 Prestroke mm : 0.3
 (from BDC): +0.02(0.06)

Start of delivery block
 Piston stroke mm: 1.5
 mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 850
 Setting value mm: 3.9...4.3

Supply-pump pressure:

Speed 1/min: 850
 Setting value bar: 3.9...4.5

Full-load del. w/out charge press.:

Speed 1/min : 1100
 Del.quantity cm³/ 1000H.: 56.0...57.0
 Dispersion cm³/ 4.0
 1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
 Del.quantity cm³/ 1000H.: 8.0...14.0
 Dispersion cm³/ 5.5
 1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1400
 Del.quantity cm³/ 1000H: 36.0...42.0

Start:

Speed 1/min: 100
 mind cm³/1000H.: 60.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed	1/min: 500
TD travel	mm: 1.3...2.1
	mm: (1.0...2.4)
2nd speed	1/min: 850
TD travel	mm: 3.9...4.3
	mm: (3.4...4.8)
3rd speed	1/min: 1100
TD travel	mm: 5.9...6.7
	mm: (5.6...7.0)

Supply-pump pressure characteristic:

1st speed	1/min: 500
Supply-pump pressure	bar: 2.5...3.1
2nd speed	1/min: 850

Supply-pump
pressure bar: 3.9...4.5
3rd speed 1/min: 1100

Supply-pump
pressure bar: 4.9...5.5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1325
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1520
Del.quantity cm³/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1440
Del.quantity cm³/: 15.0...45.0
1000H.: -
3rd speed 1/min: 1400
Del.quantity cm³/: 36.0...42.0
1000H.: (33.0...45.0)
4th speed 1/min: 1325
Del.quantity cm³/: 53.5...55.5
1000H.: (51.0...57.0)
5th speed 1/min: 1100
Del.quantity cm³/: 56.0...57.0
1000H.: (53.5...59.5)
6th speed 1/min: 850
Del.quantity cm³/: 53.5...57.5
1000H.: (51.5...59.5)
7th speed 1/min: 500
Del.quantity cm³/: 38.5...46.5
1000H.: (36.5...48.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1325
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 8.0...14.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450

Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
ind. 1000H: 65.0

2nd speed 1/min: 250
max. 1000H : 65.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5.0...5.4
MS	mm	:	1.3...1.7
SVS max.	mm	:	1.2
XK	mm	:	18.8...20.8
XL	mm	:	9.6...13.0

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5.9 T10
Edition : 17.01.1990
replaces : -
Calibrating oil : ISO4113

Injection pump : VE 6/12F1400 R232
Type number : 0 460 426 077
Customer Part-No. : 3 908 578

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9 AUTO

Power k: 117
Speed 1/mi: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 688 901 027

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm: -
mm: -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
Charge press. hPa: 1000
Setting value mm: 4.2...4.6

Supply-pump pressure:

Speed 1/min: 900
Charge press. hPa: 1000
Setting value bar: 4.1...4.7

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 67.0...68.0
Dispersion cm³/ : 4.0
1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 30.5...31.5

Low-idle speed regulation:

Speed 1/min: 360
Charge press. hPa: -
Del.quantity cm³/
1000H.: 8.0...14.0
Dispersion cm³/ : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1530
Charge press. hPa: 1000
Del.quantity cm³/
1000H: 49.0...55.0

Start:

Speed 1/min: 100
Charge press. hPa: -
mind cm³/1000H.: 45.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500*
Charge press. hPa: 1000
TD travel mm: 0.4...1.2*
mm: (0.1...1.5)
2nd speed 1/min: 900
Charge press. hPa: 1000

TD travel mm: 4.2...4.6
 mm: (3.7...5.1)
 3rd speed 1/min: 1110
 Charge press. hPa: 1000
 TD travel mm: 5.5...6.3
 mm: (5.2...6.6)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 2.4...3.0
 2nd speed 1/min: 900
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.1...4.7
 3rd speed 1/min: 1400
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.1...6.7

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 1400
 Charge press. hPa: 1000
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
 Charge-air pressure-setting point hPa: 500
 LDA stroke mm: 6.7
 Del.quantity cm³: 59.0...60.0
 1000H.: (55.5...63.5)
 2nd speed 1/min: 1700
 Charge press. hPa: 1000
 Del.quantity cm³: 0.0...3.0
 1000H.: -
 3rd speed 1/min: 1620
 Charge press. hPa: 1000
 Del.quantity cm³: 15.0...55.0
 1000H.: (0.0...40.0)
 4th speed 1/min: 1530
 Charge press. hPa: 1000
 Del.quantity cm³: 49.0...55.0
 1000H.: -
 5th speed 1/min: 1400
 Charge press. hPa: 1000
 Del.quantity cm³: 61.5...64.5
 1000H.: (60.0...66.0)
 6th speed 1/min: 1100
 Charge press. hPa: 1000

Del.quantity cm³: 64.5...67.5
 1000H.: (62.5...69.5)
 7th speed 1/min: 900
 Charge press. hPa: 1000
 Del.quantity cm³: 67.0...68.0
 1000H.: (64.5...70.5)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Del.quantity cm³: 65.5...73.5
 1000H.: -
 9th speed 1/min: 500
 Charge press. hPa: -
 Del.quantity cm³: 30.5...31.5
 1000H.: (27.0...35.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1400
 Del.quantity cm³: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 360
 Del.quantity cm³: 0.0...3.0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 360
 Del.quantity cm³: 8.0...14.0
 1000H.: (6.0...16.0)
 2nd speed 1/min: 450
 Del.quantity cm³: 0.0...0.4
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
 Charge press. hPa: -
 ind. 1000H: 5.0
 2nd speed 1/min: 480
 Charge press. hPa: -
 max. 1000H: 95.0

Shutoff electromagnet:

Cut-in
 min. voltage : 20.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation	
K	mm : -
KF	mm : 5.0...5.4
MS	mm : 1.1...1.5

XK mm : 20.2...22.2
XL mm : 10.2...13.6

Remarks:

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W21
 Edition : 16.01.90
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE 6/12F1250 R278
 Type number : 0 460 426 103
 Customer Part-No. : 3 910 439

Customer-specific information
 Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 pressure bar : 250...253

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Start of delivery block
 Piston stroke mm: 1,4
 mm: +0,02(0,04)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
 Setting value mm: 1,3...1,7
 KSB solenoid-operated
 valve volt: 24,0

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Setting value bar: 6,8...7,4
 KSB solenoid-operated
 valve volt: 24,0

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H.: 73,0...74,0
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 4,0
 1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 51,0...52,0
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 9,0
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
 Del.quantity cm³/
 1000H.: 5,5...9,5
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 5,5
 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H: 52,5...58,5
 KSB solenoid-operated
 valve volt: 24,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 60,0
 KSB solenoid-operated
 valve volt: 24,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated
valve volt: 24,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated
valve volt: 24,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated
valve volt: 24,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7
KSB solenoid-operated
valve volt: 24,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure bar: 6,8...7,4
KSB solenoid-operated
valve volt: 24,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure bar: 7,5...8,1
KSB solenoid-operated
valve volt: 24,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 24,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0

Del.quantity cm³/: 72,0...77,0
1000H: (70,0...79,0)

9th speed 1/min: 500

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 79,0...91,0

1000H: -

10th speed 1/min: 500

Charge press. hPa: -

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 51,0...52,0

1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250

Del.quantity cm³/: 0,3

1000H: -

Electr. shutoff:

Speed 1/min: 350

ELAB volt: -

Del.quantity cm³/: 0,0...3,0

max. 1000H: -

Idle delivery:

1st speed 1/min: 350

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 5,5...9,5

1000H: (2,5...12,5)

2nd speed 1/min: 300

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 8,5...16,5

1000H: -

3rd speed 1/min: 450

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 0,0...4,0

1000H: -

Automatic starting fuel delivery:

1st speed 1/min: 130

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: -

ind. 1000H: 60,0

2nd speed 1/min: 250

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: -
max. 1000H : 50,0

Shutoff electromagnet:

Cut-in

min. voltage : 20,0

Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K mm : 3,7

KF mm : K-OT

MS mm : 0,8...1,2

SVS max. mm : 1,4

XK mm : 18,8...20,8

XL mm : 12,5...15,9

* Correction at adjusting nut (46)
remarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W18
 Edition : 16.01.90
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE 6/12F1250 R278
 Type number : 0 460 426 103
 Customer Part-No. : 3 910 769

Customer-specific information
 Customer : CDC
 Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...45
 electronically : 42...50
 Inlet press., bar : 0.35
 Calibrating nozzle-holder
 assembly : 1 688 901 027
 Opening
 pressure bar : 250...253
 Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Start of delivery block
 Piston stroke mm: 1,4
 mm: +0,02(0,04)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
 Setting value mm: 1,3...1,7
 KSB solenoid-operated
 valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Setting value bar: 6,8...7,4
 KSB solenoid-operated
 valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H.: 73,0...74,0
 KSB solenoid-operated
 valve volt: 12,0
 Dispersion cm³/ : 4,0
 1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 51,0...52,0
 KSB solenoid-operated
 valve volt: 12,0
 Dispersion cm³/ : 9,0
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
 Del.quantity cm³/
 1000H.: 5,5...9,5
 KSB solenoid-operated
 valve volt: 12,0
 Dispersion cm³/ : 5,5
 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H: 52,5...58,5
 KSB solenoid-operated
 valve volt: 12,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 60,0
 KSB solenoid-operated
 valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7
KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure bar: 6,8...7,4
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure bar: 7,5...8,1
KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0

Del.quantity cm³/: 72,0...77,0
1000H: (70,0...79,0)

9th speed 1/min: 500

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 79,0...91,0

1000H: -

10th speed 1/min: 500

Charge press. hPa: -

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 51,0...52,0

1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250

Del.quantity cm³/: 0,3

1000H.: -

Electr. shutoff:

Speed 1/min: 350

ELAB volt: -

Del.quantity cm³/: 0,0...3,0

max. 1000H.: -

Idle delivery:

1st speed 1/min: 350

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 5,5...9,5

1000H.: (2,5...12,5)

2nd speed 1/min: 300

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 8,5...16,5

1000H.: -

3rd speed 1/min: 450

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 0,0...4,0

1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: -

ind. 1000H: 60,0

2nd speed 1/min: 250

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: -

max. 1000H : 50,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,7

KF mm : K-OT

MS mm : 0,8...1,2

SVS max. mm : 1/4

XK mm : 18,8...20,8

XL mm : 12,5...15,9

* Correction at adjusting nut (46)

marks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W19
 Edition : 16.01.90
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE 6/12F1250 R278
 Type number : 0 460 426 103
 Customer Part-No. : 3 914 888

Customer-specific information
 Customer : CDC
 Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50
 Inlet press., bar : 0.35
 Calibrating nozzle-holder
 assembly : 1 688 901 027
 Opening
 pressure bar : 250...253
 Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017
 Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : -
 (from BDC) : -
 Start of delivery block
 Piston stroke mm: 1,4
 mm: +0,02(0,04)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
 Setting value mm: 1,3...1,7
 KSB solenoid-operated
 valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Setting value bar: 6,8...7,4
 KSB solenoid-operated
 valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H.: 73,0...74,0
 KSB solenoid-operated
 valve volt: 12,0
 Dispersion cm³/ : 4,0
 1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 51,0...52,0
 KSB solenoid-operated
 valve volt: 12,0
 Dispersion cm³/ : 9,0
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
 Del.quantity cm³/
 1000H.: 5,5...9,5
 KSB solenoid-operated
 valve volt: 12,0
 Dispersion cm³/ : 5,5
 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H: 52,5...58,5
 KSB solenoid-operated
 valve volt: 12,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 60,0
 KSB solenoid-operated
 valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated valve volt: 12,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated valve volt: 12,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump pressure bar: 4,1...4,7
KSB solenoid-operated valve volt: 12,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump pressure bar: 6,8...7,4
KSB solenoid-operated valve volt: 12,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump pressure bar: 7,5...8,1
KSB solenoid-operated valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated valve volt: 12,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0

Del.quantity cm³/: 72,0...77,0
 1000H: (70,0...79,0)
 9th speed 1/min: 500
 Charge press. hPa: 1200
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 79,0...91,0
 1000H: -
 10th speed 1/min: 500
 Charge press. hPa: -
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 51,0...52,0
 1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
 Del.quantity cm³/: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 350
 ELAB volt: -
 Del.quantity cm³/: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 5,5...9,5
 1000H.: (2,5...12,5)
 2nd speed 1/min: 300
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 8,5...16,5
 1000H.: -
 3rd speed 1/min: 450
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 0,0...4,0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: -
 ind. 1000H: 60,0

2nd speed 1/min: 250
 KSB solenoid-operated
 valve volt: 12,0

Del.quantity cm³/: -
 max. 1000H : 50,0

Shutoff electromagnet:

Cut-in
 min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation	
K	mm : 3,7
KF	mm : K-OT
MS	mm : 0,8...1,2
SVS max.	mm : 1,4
XK	mm : 18,8...20,8
XL	mm : 12,5...15,9

* Correction at adjusting nut (46)
remarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U28
 Edition : 17.01.90
 replaces : -
 Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278
 Type number : 0 460 426 103
 Customer Part-No. : 3 914 889

Customer-specific information
 Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 pressure bar : 250...253

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Start of delivery block
 Piston stroke mm: 1,4
 mm: +0,02(0,04)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
 Setting value mm: 1,3...1,7
 KSB solenoid-operated
 valve volt: 24,0

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Setting value bar: 6,8...7,4
 KSB solenoid-operated
 valve volt: 24,0

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H.: 73,0...74,0
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 4,0
 1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 51,0...52,0
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 9,0
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
 Del.quantity cm³/
 1000H.: 5,5...9,5
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 5,5
 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H: 52,5...58,5
 KSB solenoid-operated
 valve volt: 24,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 60,0
 KSB solenoid-operated
 valve volt: 24,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated valve volt: 24,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated valve volt: 24,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated valve volt: 24,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump pressure bar: 4,1...4,7
KSB solenoid-operated valve volt: 24,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump pressure bar: 6,8...7,4
KSB solenoid-operated valve volt: 24,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump pressure bar: 7,5...8,1
KSB solenoid-operated valve volt: 24,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated valve volt: 24,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0

Del. quantity cm³/: 72,0...77,0
1000H: (70,0...79,0)

9th speed 1/min: 500

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 24,0

Del. quantity cm³/: 79,0...91,0

1000H: -

10th speed 1/min: 500

Charge press. hPa: -

KSB solenoid-operated

valve volt: 24,0

Del. quantity cm³/: 51,0...52,0

1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250

Del. quantity cm³/: 0,3

1000H.: -

Electr. shutoff:

Speed 1/min: 350

ELAB volt: -

Del. quantity cm³/: 0,0...3,0

max. 1000H.: -

Idle delivery:

1st speed 1/min: 350

KSB solenoid-operated

valve volt: 24,0

Del. quantity cm³/: 5,5...9,5

1000H.: (2,5...12,5)

2nd speed 1/min: 300

KSB solenoid-operated

valve volt: 24,0

Del. quantity cm³/: 8,5...16,5

1000H.: -

3rd speed 1/min: 450

KSB solenoid-operated

valve volt: 24,0

Del. quantity cm³/: 0,0...4,0

1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130

KSB solenoid-operated

valve volt: 24,0

Del. quantity cm³/: -

ind. 1000H: 60,0

2nd speed 1/min: 250

KSB solenoid-operated

valve volt: 24,0

Del. quantity cm³/: -

max. 1000H : 50,0

Shutoff electromagnet:

Cut-in

min. voltage : 20,0

Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K mm : 3,7

KF mm : K-OT

MS mm : 0,8...1,2

SVS max. mm : 1,4

XK mm : 18,8...20,8

XL mm : 12,5...15,9

* Correction at adjusting nut (46)

remarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W22
 Edition : 16.01.90
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE 6/12F1250 R278
 Type number : 0 460 426 103
 Customer Part-No. : 3 914 927

Customer-specific information
 Customer : CDC
 Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 pressure bar : 250...253

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Start of delivery block
 Piston stroke mm: 1,4
 mm: +0,02(0,04)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
 Setting value mm: 1,3...1,7
 KSB solenoid-operated
 valve volt: 24,0

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Setting value bar: 6,8...7,4
 KSB solenoid-operated
 valve volt: 24,0

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H.: 73,0...74,0
 KSB solenoid-operated
 valve volt : 24,0
 Dispersion cm³/ : 4,0
 1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 51,0...52,0
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 9,0
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
 Del.quantity cm³/
 1000H.: 5,5...9,5
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 5,5
 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H: 52,5...58,5
 KSB solenoid-operated
 valve volt: 24,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 60,0
 KSB solenoid-operated
 valve volt: 24,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated
valve volt: 24,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated
valve volt: 24,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated
valve volt: 24,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7
KSB solenoid-operated
valve volt: 24,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure bar: 6,8...7,4
KSB solenoid-operated
valve volt: 24,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure bar: 7,5...8,1
KSB solenoid-operated
valve volt: 24,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 24,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0

Del.quantity cm³/: 72,0...77,0
1000H: (70,0...79,0)

9th speed 1/min: 500

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 79,0...91,0

1000H: -

10th speed 1/min: 500

Charge press. hPa: -

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 51,0...52,0

1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250

Del.quantity cm³/: 0,3

1000H.: -

Electr. shutoff:

Speed 1/min: 350

ELAB volt: -

Del.quantity cm³/: 0,0...3,0

max. 1000H.: -

Idle delivery:

1st speed 1/min: 350

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 5,5...9,5

1000H.: (2,5...12,5)

2nd speed 1/min: 300

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 8,5...16,5

1000H.: -

3rd speed 1/min: 450

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 0,0...4,0

1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: -

ind. 1000H: 60,0

2nd speed 1/min: 250

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: -
max. 1000H : 50,0

Shutoff electromagnet:

Cut-in

min. voltage : 20,0

Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K mm : 3,7

KF mm : K-OT

MS mm : 0,8...1,2

SVS max. mm : 1,4

XK mm : 18,8...20,8

XL mm : 12,5...15,9

* Correction at adjusting nut (46)
Remarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W24

Edition : 16.01.90

replaces : -

Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278

Type number : 0 460 426 103

Customer Part-No. : 3 915 255

Customer-specific information

Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C

with thermometer : 40...48

electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6

x Wall thickness : 2

x Length mm : 840

Start of delivery

Prestroke mm : -
(from BDC) : -

Start of delivery block

Piston stroke mm: 1,4
mm: +0,02(0,04)

Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
Setting value mm: 1,3...1,7
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value bar: 6,8...7,4
KSB solenoid-operated
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del.quantity cm³/
1000H.: 73,0...74,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/ : 4,0
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 51,0...52,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/ : 9,0
1000H : -

Low-idle speed regulation:

Speed 1/min: 350
Del.quantity cm³/
1000H.: 5,5...9,5
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
Charge press. hPa: 1200
Del.quantity cm³/
1000H: 52,5...58,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 60,0
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7
KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure bar: 6,8...7,4
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure bar: 7,5...8,1
KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0

Del. quantity cm³/: 72,0...77,0
1000H: (70,0...79,0)

9th speed 1/min: 500

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Del. quantity cm³/: 79,0...91,0

1000H: -

10th speed 1/min: 500

Charge press. hPa: -

KSB solenoid-operated

valve volt: 12,0

Del. quantity cm³/: 51,0...52,0

1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250

Del. quantity cm³/: 0..3

1000H.: -

Electr. shutoff:

Speed 1/min: 350

ELAB volt: -

Del. quantity cm³/: 0,0...3,0

max. 1000H.: -

Idle delivery:

1st speed 1/min: 350

KSB solenoid-operated

valve volt: 12,0

Del. quantity cm³/: 5,5...9,5

1000H.: (2,5...12,5)

2nd speed 1/min: 300

KSB solenoid-operated

valve volt: 12,0

Del. quantity cm³/: 8,5...16,5

1000H.: -

3rd speed 1/min: 450

KSB solenoid-operated

valve volt: 12,0

Del. quantity cm³/: 0,0...4,0

1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130

KSB solenoid-operated

valve volt: 12,0

Del. quantity cm³/: -

ind. 1000H: 60,0

2nd speed 1/min: 250

KSB solenoid-operated

valve volt: 12,0

Del. quantity cm³/: -
max. 1000H : 50,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,7
KF	mm	: K-0T
MS	mm	: 0,8...1,2
SVS max.	mm	: 1,4
XK	mm	: 18,8...20,8
XL	mm	: 12,5...15,9

* Correction at adjusting nut (46)
remarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W20
 Edition : 16.01.90
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE 6/12F1250 R278
 Type number : 0 460 426 103
 Customer Part-No. : 3 915 525

Customer-specific information
 Customer : CDC
 Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 pressure bar : 250...253

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Start of delivery block
 Piston stroke mm: 1,4
 mm: +0,02(0,04)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
 Setting value mm: 1,3...1,7
 KSB solenoid-operated
 valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Setting value bar: 6,8...7,4
 KSB solenoid-operated
 valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H.: 73,0...74,0
 KSB solenoid-operated
 valve volt: 12,0
 Dispersion cm³/ : 4,0
 1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 51,0...52,0
 KSB solenoid-operated
 valve volt: 12,0
 Dispersion cm³/ : 9,0
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
 Del.quantity cm³/
 1000H.: 5,5...9,5
 KSB solenoid-operated
 valve volt: 12,0
 Dispersion cm³/ : 5,5
 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H: 52,5...58,5
 KSB solenoid-operated
 valve volt: 12,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 60,0
 KSB solenoid-operated
 valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated valve volt: 12,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated valve volt: 12,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump pressure bar: 4,1...4,7
KSB solenoid-operated valve volt: 12,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump pressure bar: 6,8...7,4
KSB solenoid-operated valve volt: 12,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump pressure bar: 7,5...8,1
KSB solenoid-operated valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated valve volt: 12,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
charge-air pressure-setting point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0
Del.quantity cm³/: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
charge press. hPa: 1200
KSB solenoid-operated valve volt: 12,0

Del.quantity cm³/: 72,0...77,0
1000H: (70,0...79,0)

9th speed 1/min: 500

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 79,0...91,0

1000H: -

10th speed 1/min: 500

Charge press. hPa: -

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 51,0...52,0

1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250

Del.quantity cm³/: 0..3

1000H.: -

Electr. shutoff:

Speed 1/min: 350

ELAB volt: -

Del.quantity cm³/: 0,0...3,0

max. 1000H.: -

Idle delivery:

1st speed 1/min: 350

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 5,5...9,5

1000H.: (2,5...12,5)

2nd speed 1/min: 300

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 8,5...16,5

1000H.: -

3rd speed 1/min: 450

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 0,0...4,0

1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: -

ind. 1000H: 60,0

2nd speed 1/min: 250

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: -
max. 1000H : 50,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,7
KF	mm	: K-0T
MS	mm	: 0,8...1,2
SVS max.	mm	: 1,4
XK	mm	: 18,8...20,8
XL	mm	: 12,5...15,9

* Correction at adjusting nut (46)
remarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W23
 Edition : 16.01.90
 replaces : -
 Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278
 Type number : 0 460 426 103
 Customer Part-No. : 3 915 526

Customer-specific information
 Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 pressure bar : 250...253

Perforated-plate
 diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Start of delivery block
 Piston stroke mm: 1,4
 mm: +0,02(0,04)
 Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
 Setting value mm: 1,3...1,7
 KSB solenoid-operated
 valve volt: 24,0

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Setting value bar: 6,8...7,4
 KSB solenoid-operated
 valve volt: 24,0

Full-load del. with charge press.:

Speed 1/min: 1100
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H.: 73,0...74,0
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 4,0
 1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
 Del.quantity cm³/
 1000H.: 51,0...52,0
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 9,0
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
 Del.quantity cm³/
 1000H.: 5,5...9,5
 KSB solenoid-operated
 valve volt: 24,0
 Dispersion cm³/ : 5,5
 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
 Charge press. hPa: 1200
 Del.quantity cm³/
 1000H: 52,5...58,5
 KSB solenoid-operated
 valve volt: 24,0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm³/1000H.: 60,0
 KSB solenoid-operated
 valve volt: 24,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated valve volt: 24,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated valve volt: 24,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated valve volt: 24,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump pressure bar: 4,1...4,7
KSB solenoid-operated valve volt: 24,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump pressure bar: 6,8...7,4
KSB solenoid-operated valve volt: 24,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump pressure bar: 7,5...8,1
KSB solenoid-operated valve volt: 24,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated valve volt: 24,0

Overflow quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Overflow quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³/: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³/: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³/: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0
Del.quantity cm³/: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated valve volt: 24,0

Del.quantity cm³/: 72,0...77,0
1000H: (70,0...79,0)

9th speed 1/min: 500

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 79,0...91,0
1000H: -

10th speed 1/min: 500

Charge press. hPa: -

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 51,0...52,0
1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250

Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350

ELAB volt: -

Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 5,5...9,5
1000H.: (2,5...12,5)

2nd speed 1/min: 300

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 8,5...16,5
1000H.: -

3rd speed 1/min: 450

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: -
ind. 1000H: 60,0

2nd speed 1/min: 250

KSB solenoid-operated

valve volt: 24,0

Del.quantity cm³/: -
max. 1000H : 50,0

Shutoff electromagnet:

Cut-in min. voltage : 20,0

Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K mm : 3,7

KF mm : K-0T

MS mm : 0,8...1,2

SVS max. mm : 1,4

XK mm : 18,8...20,8

XL mm : 12,5...15,9

* Correction at adjusting nut (46)

remarks:

* Unscrew KSB ball valve 2 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,0 h
 Edition : 12.02.1990
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 848 006

Injection pump
 Pump designation : PES8A75D320RS2286
 Governor
 Governor design. : RQ300/1500AB723DR

Customer-spec. information
 Customer : IHC

Engine : DV 550 B

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Inlet press., bar : 2.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 702

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.95...4.05
 : (-)

Rack travel in mm : 9.5
 Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-
 Phasing : 270-315
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1500
 Rack travel in mm : 10.0
 Del.quantity cm³/ : 6.2...6.5
 100 s: (-)
 2nd speed rpm : 300
 Rack travel in mm : 6.90...7.10
 Del.quantity cm³/ : 2.55 *
 100 s: (-)
 3rd speed rpm : 300
 Rack travel in mm : 6.90...7.10
 Del.quantity cm³/ : 0.1...0.45**
 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 650
 Rack travel in mm : 19.6...20.4

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1500
 Del.quantity : 59.0...61.0
 1000 : (-)

RATED SPEED

1st version

Setting point:
 Speed rpm : 650
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 17.80
 Speed rpm : 1490...1510
 2nd rack travel in: 5.00
 Speed rpm : 1635...1665
 3rd rack travel in: 7.0...13.7
 Speed rpm : 1600
 4th rack travel in: 1770
 Speed rpm : 0.0...1.0

LOW IDLE 1

Setting point w/out bumper spring
 Speed rpm : 630
 Rack travel in mm : -

Testing:

Speed rpm : 100
 Minimum rack trav: 9.8
 Speed rpm : 200
 Rack travel in mm : 8.4...11.5
 Rack travel in mm : 7.85

Speed rpm : 285...315
Speed rpm : 400
Maximum rack trave: 6.2
Speed rpm : 530
Rack travel in mm : -

TORQUE CONTROL

Dimension a mm : 0.5
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 19.9...20.0
2nd speed rpm : 900
Rack travel in m: 19.2...19.5
3rd speed rpm : 1100
Rack travel in m: 18.2...18.6

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1000
Del.quantity cm³/ : 54.0...58.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: ?
Speed rpm : 1540

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 81.0...101.0
1000 s: (-)

LOW IDLE

Speed rpm : 300
Del.quantity cm³/ : 14.5...18.5
1000 s: (-)

Remarks:

:

* = Cylinders 1,7,6 and 4

** = Cylinders 2,8,3 and 5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,0 h 2
 Edition : 13.02.1990
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 848 008

Injection pump
 Pump designation : PES8A75D320RS2286
 Governor
 Governor design. : RQ300/1500AB725DR

Customer-spec. information
 Customer : IHC

Engine : DV 462 B

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Inlet press., bar : 2.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 9 681 230 702

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.95...4.05
 Rack travel in mm : 8.40
 Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1500
 Rack travel in mm : 10.0
 Del.quantity cm³/ : 6.20...6.50
 100 s: (-)

2nd speed rpm : 300
 Rack travel in mm : 6.90...7.10
 Del.quantity cm³/ : 2.55 *
 100 s: (-)
 3rd speed rpm : 300
 Rack travel in mm : 6.90...7.10
 Del.quantity cm³/ : 0.1...0.45**
 100 s: (-)

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 650
 Rack travel in mm : 19.6...20.4

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1500
 Del.quantity : 49.0...51.0
 1000 : (-)

RATED SPEED

1st version

Setting point:
 Speed rpm : 650
 Rack travel in mm : 20.0

Testing:
 1st rack travel in: 18.45
 Speed rpm : 1490...1510
 2nd rack travel in: 4.60
 Speed rpm : 1655...1685
 3rd rack travel in: 7.6...14.6
 Speed rpm : 1600
 4th rack travel in: 1780
 Speed rpm : 0.0...1.0

LOW IDLE 1
 Setting point w/out bumper spring
 Speed rpm : 620
 Rack travel in mm : -

Testing:
 Speed rpm : 100
 Minimum rack trav: 9.7
 Speed rpm : 200
 Rack travel in mm : 8.3...11.4
 Rack travel in mm : 7.65
 Speed rpm : 285...315

Speed rpm : 400
Maximum rack trave: 6.0
Speed rpm : 520
Rack travel in mm : -

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 19.7...20.0
2nd speed rpm : 1250
Rack travel in m: 19.0...19.4
3rd speed rpm : 1350
Rack travel in m: 18.6...18.9

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1000
Del.quantity cm³/ 1000 s: 45.0...48.0 (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: ?
Speed rpm : 1540

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 81.0...104.0 (-)

LOW IDLE

Speed rpm : 300
Del.quantity cm³/ 1000 s: 14.5...18.5 * (-)

Remarks:

* = Cylinders 1,7,6 and 4

** = Cylinders 2,8,3 and 5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 q
 Edition : 01.02.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 154

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4

EP type number : 9 410 230 030

Governor

Governor design. : RSV450...1100AOC2241
 -R

Governer no. : 0 420 233 256

Customer-spec. information

Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:
1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1240
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.00...12.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.00...12.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 305
Rack travel in m: 11.10...11.20
3rd pressure hPa : 425
Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 110.5...114.5
1000 s: (108.5...116.5)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 78.0...80.0
1000 s: (76.0...82.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : C.D.C. # 3915995

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 j 7
 Edition : 13.02.1990
 Replaces : -
 Test oil : ISO 4113
 Combination no. : 0 400 874 022
 Injection pump
 Pump designation : PES4A80C420LS2054
 Governor
 Governor design. : RSV300...1000A2B137D
 R
 Customer-spec. information
 Customer : CASE
 Engine : A-267DF
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 35...45
 Overflow valve : CASE
 Inlet press., bar : 1.3
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 9 681 230 706
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Prestroke mm : 2.15...2.25
 Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2
 Phasing : 0-90-180-270
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm		: 9.00
Del.quantity cm3/		: 5.55...6.05
		100 s: (-)
2nd speed	rpm	: 1000
Rack travel in mm		: 15.0
Del.quantity cm3/		: 11.55...12.85
		100 s: (-)
Spread	cm3	: 0.4
		100 s: (-)
3rd speed	rpm	: 200
Rack travel in mm		: 6.0
Del.quantity cm3/		: 1.35...2.25
		100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position	Degree:	-3
Speed	rpm	: 800
Rack travel in mm		: 0.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	Speed	rpm	: 980
	Del.quantity		: 66.0...68.0
	1000		: (-)

RATED SPEED

1st version	Control lever	position degrees:	39...47
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Testing:
 1st rack travel in: 9.20
 Speed rpm : 1005...1025
 2nd rack travel in: 7.20
 Speed rpm : 1025...1055
 3rd rack travel in: 2.80...4.10
 Speed rpm : 1085...1115
 4th rack travel in: 1200
 Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever	position degrees:	20...28
Setting point w/out bumper spring	Speed rpm	: 300
Rack travel in mm		: 5.80

Testing:

Speed	rpm	: 150
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Minimum rack trave: 19.0
Speed rpm : 300
Rack travel in mm : 5.5...6.1
Rack travel in mm : 2.90
Speed rpm : 400
Speed rpm : 500
Maximum rack trave: 1.0

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 0.80...1.00
2nd speed rpm : 400
Rack travel in m: 1.0...1.3

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ 1000 s: 76.5...79.5
Speed rpm : 500
Del.quantity cm³/ 1000 s: 73.0...76.0

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: ?
Speed rpm : 1000...1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 74.0...84.0

HIGH IDLE

1st version
Speed rpm : 1090
Del.quantity cm³/ 1000 s: 14.5...22.5

Remarks:
: CASE # A22636

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 j 1
 Edition : 13.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 874 057
 Injection pump
 Pump designation : PES4A80C420LS2054
 Governor
 Governor design. : RSV300...1000A2B137D
 R
 Customer-spec. information
 Customer : CASE
 Engine : A-267DF
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 35...45
 Overflow valve : CASE
 Inlet press., bar : 1.3
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 9 681 230 706
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.0...12.0
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm		: 9.0
Del.quantity cm ³ /		: 5.55...6.05
100 s:	(-)	
Spread	cm ³	: 0.40
100 s:	(-)	
2nd speed	rpm	: 1000
Rack travel in mm		: 15.0
Del.quantity cm ³ /		: 11.55...12.85
100 s:	(-)	
Spread	cm ³	: 0.4
100 s:	(-)	
3rd speed	rpm	: 200
Rack travel in mm		: 6.0
Del.quantity cm ³ /		: 1.35...2.25
100 s:	(-)	

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 980
 Del.quantity : 66.0...68.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:
 1st rack travel in: 9.20
 Speed rpm : 1005...1025
 2nd rack travel in: 7.20
 Speed rpm : 1025...1055
 3rd rack travel in: 2.80...4.10
 Speed rpm : 1085...1115
 4th rack travel in: 1200
 Speed rpm : 0.0...1.00

LOW IDLE 1
Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.80

Testing:
Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.50...6.10
Rack travel in mm : 2.90
Speed rpm : 400
Speed rpm : 500
Maximum rack trave: 1.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 0.80...1.00
2nd speed rpm : 400
Rack travel in m: 1.00...1.30

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ 1000 s: 76.5...79.5
Speed rpm : 500
Del.quantity cm³/ 1000 s: 73.0...76.0

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: ?
Speed rpm : 1000...1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 74.0...84.0

HIGH IDLE

1st version
Speed rpm : 1090
Del.quantity cm³/ 1000 s: 14.5...22.5

Remarks:
: CASE # A22636

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 1 a 3
 Edition : 13.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 874 088
 Injection pump
 Pump designation : PES4A80C420LS2263
 Governor
 Governor design. : RSV375...950A2B518DR
 Customer-spec. information
 Customer : CASE
 Engine : A-267BD
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 35...45
 Overflow valve : CASE
 Inlet press., bar : 1.3
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 9 681 230 706
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2
 Phasing : 0-90-180-270
 Tolerance + - : 0.5 (0.75)

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm		: 9.00
Del.quantity cm ³ /		: 4.15...4.55
100 s:		(-)
Spread	cm ³	: 0.3
100 s:		(-)
2nd speed	rpm	: 1000
Rack travel in mm		: 12.00
Del.quantity cm ³ /		: 6.85...7.65
100 s:		(-)
Spread	cm ³	: 0.30
100 s:		(-)
3rd speed	rpm	: 200
Rack travel in mm		: 6.00
Del.quantity cm ³ /		: 1.35...2.15
100 s:		(-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 930
 Del.quantity : 59.0...61.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:
 1st rack travel in: 11.00
 Speed rpm : 960...980
 2nd rack travel in: 9.00
 Speed rpm : 985...1015
 3rd rack travel in: 2.40...4.80
 Speed rpm : 1085...1115
 4th rack travel in: 1200
 Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever
 position degrees: 25...33
 Setting point w/out bumper spring
 Speed rpm : 375

Rack travel in mm : 6.50

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 6.20...6.80
Rack travel in mm : 0.65
Speed rpm : 450
Speed rpm : 630
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 960
Rack travel in m: -
2nd speed rpm : 800
Rack travel in m: 0.30...0.50
3rd speed rpm : 450
Rack travel in m: 0.70...1.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 66.0...69.0
1000 s: (-)
Speed rpm : 550
Del.quantity cm³/ : <65.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 970

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 111.0...117.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1040
Del.quantity cm³/ : 8.50...18.50
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm³/ : 12.5...16.5
1000 s: (-)

Remarks:

: CASE # A-5833

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 4,9 a 4
 Edition : 13.2.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 874 107

Injection pump
 Pump designation : PES4A85C420LS2263
 Governor
 Governor design. : RSV375...1000A2B54?D
 R

Customer-spec. information
 Customer : CASE

Engine : A-301 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 40

Overflow valve
 : CASE

Inlet press., bar : 1.0

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.00

Del.quantity cm³/ : 4.15...45.5

100 s: (-)

Spread cm³ : 0.4

100 s: (-)

2nd speed rpm : 1000

Rack travel in mm : 12.00

Del.quantity cm³/ : 1.25...8.05

100 s: (-)

3rd speed rpm : 200

Rack travel in mm : 6.00

Del.quantity cm³/ : 0.95...1.75

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 69.5...71.5

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 35...43

Testing:

1st rack travel in: 11.40

Speed rpm : 1010...1030

2nd rack travel in: 7.20

Speed rpm : 1045...1075

3rd rack travel in: 3.60...4.90

Speed rpm : 1085...1115

4th rack travel in: 1200

Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 7.50

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 7.20...7.80
Rack travel in mm : 4.50
Speed rpm : 450
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: -
2nd speed rpm : 800
Rack travel in m: 0.80...1.00
3rd speed rpm : 400
Rack travel in m: 1.50...1.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 85.0...89.0
1000 s: (-)
Speed rpm : 500
Del.quantity cm³/ : < 87.5
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: ?
Speed rpm : 1040...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 124.0...134.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1090
Del.quantity cm³/ : 9.5...17.5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm³/ : 15.5...19.5
1000 s: (-)

Remarks:

: CASE # A60632
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5.5 e 6
 Edition : 25.01.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : D 400 874 131
 Injection pump
 Pump designation : PES4A85C420LS2263
 Governor
 Governor design. : RSV375...1100A2B554D
 R
 Customer-spec. information
 Customer : CASE
 Engine : A 336 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : CASE
 Inlet press., bar : 1.0
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 9 681 230 706
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9.00
 Del.quantity cm³/ : 4.1...4.5
 100 s: (-)
 Spread cm³ : 0.4
 100 s: (-)
 2nd speed rpm : 1000
 Rack travel in mm : 12.00
 Del.quantity cm³/ : 7.2...8.0
 100 s: (-)
 3rd speed rpm : 200
 Rack travel in mm : 6.00
 Del.quantity cm³/ : 0.9...1.7
 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 80.5...82.5
 1000 : (79.5...83.5)

RATED SPEED

1st version
 Control lever
 position degrees: 35...43

Testing:

1st rack travel in: 12.20
 Speed rpm : 1110...1130
 2nd rack travel in: 7.40
 Speed rpm : 1145...1175
 3rd rack travel in: 4.30...5.60
 Speed rpm : 1185...1215
 4th rack travel in: 1300
 Speed rpm : 0.30...1.00

LOW IDLE 1
 Control lever

position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7.70

Speed rpm : 375
Del.quantity cm³/ 1000 s: 18.5...22.5
1000 s: (17.5...23.5)

Remarks:

Testing:
Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 7.4...8.0
Rack travel in mm : 4.35
Speed rpm : 450
Speed rpm : 580
Maximum rack trave: 1.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: -
2nd speed rpm : 900
Rack travel in m: 0.30...0.50
3rd speed rpm : 500
Rack travel in m: 0.40...0.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ 1000 s: 86.0...89.0
1000 s: (85.0...90.0)
Speed rpm : 650
Del.quantity cm³/ 1000 s: < 88.0
1000 s: (< 89.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: ?
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 126.0...132.0
1000 s: (125.0...133.0)

HIGH IDLE

1st version
Speed rpm : 1200
Del.quantity cm³/ 1000 s: 6.5...14.5
1000 s: (5.5...15.5)

LOW IDLE

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 4,9 a
 Edition : 15.02.1990
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 400 874 161

 Injection pump
 Pump designation : PES4A85D420LS2263
 Governor
 Governor design. : RSV375...1100A2B579D
 R

 Customer-spec. information
 Customer : CASE

 Engine : A-301 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

 Overflow valve : CASE

 Inlet press., bar : 1.3

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 9 681 230 706

 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm	:	9.00
Del.quantity cm ³ /	:	4.1...4.6
100 s:		(-)
Spread	cm ³	: 0.4
100 s:		(-)
2nd speed	rpm	: 1000
Rack travel in mm	:	12.00
Del.quantity cm ³ /	:	7.2...8.1
100 s:		(-)
3rd speed	rpm	: 200
Rack travel in mm	:	6.00
Del.quantity cm ³ /	:	0.9...1.8
100 s:		(-)

GUIDE SLEEVE POSITION

Control-lever position	Degree:	-3
Speed	rpm	: 800
Rack travel in mm	:	0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	Speed	rpm	: 1100
	Del.quantity	:	73.5...75.5
	1000	:	(-)

RATED SPEED

1st version	Control lever	position degrees:	39...47
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Testing:	1st rack travel in:	11.40	
	Speed	rpm	: 1110...1130
	2nd rack travel in:	7.40	
	Speed	rpm	: 1145...1175
	3rd rack travel in:	4.50...5.80	
	Speed	rpm	: 1185...1215
	4th rack travel in:	1300	
	Speed	rpm	: 0.30...1.00

LOW IDLE 1

Control lever	position degrees:	18...26	
Setting point w/out bumper spring	Speed	rpm	: 375
Rack travel in mm	:	7.20	

Testing:
Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 6.90...7.50
Rack travel in mm : 4.40
Speed rpm : 450
Speed rpm : 600
Maximum rack trave: 1.00

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 0.30...0.50
2nd speed rpm : 500
Rack travel in m: 0.40...0.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ 1000 s: 76.5...79.5
Speed rpm : 650
Del.quantity cm³/ 1000 s: < 78.0

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: ?
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 124.0...134.0

HIGH IDLE

1st version
Speed rpm : 1200
Del.quantity cm³/ 1000 s: 6.5...14.5

LOW IDLE

Speed rpm : 375
Del.quantity cm³/ 1000 s: 15.5...19.5

Remarks:
: CASE # A 62453

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 e
 Edition : 13.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 874 163
 Injection pump
 Pump designation : PES4A85D420LS2263
 Governor
 Governor design. : RSV375...1000A2B519D
 R
 Customer-spec. information
 Customer : CASE
 Engine : A-336 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45
 Overflow valve
 : CASE
 Inlet press., bar : 1.3
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 9 681 230 706
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 10.50
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9.00
 Del.quantity cm³/ : 4.15...4.55
 100 s: (-)
 Spread cm³ : 0.4
 100 s: (-)
 2nd speed rpm : 200
 Rack travel in mm : 6.00
 Del.quantity cm³/ : 0.95...1.75
 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40
 Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del.quantity : 90.5...92.5
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 36...44

Testing:
 1st rack travel in: 12.60
 Speed rpm : 1010...1030
 2nd rack travel in: 9.00
 Speed rpm : 1045...1075
 3rd rack travel in: 3.80...4.40
 Speed rpm : 1005...1035
 4th rack travel in: 1220
 Speed rpm : 0.00....1.00

LOW IDLE 1
 Control lever
 position degrees: 17...25
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 7.80

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 7.50...8.10
Rack travel in mm : 4.85
Speed rpm : 450
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 800
Rack travel in m: 0.50...0.70
2nd speed rpm : 500
Rack travel in m: 0.60...0.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ 1000 s: 100.5...104.5
Speed rpm : 650
Del.quantity cm³/ 1000 s: < 101.5

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 124.0...134.0

HIGH IDLE

1st version
Speed rpm : 1100
Del.quantity cm³/ 1000 s: 11.5...19.5

LOW IDLE

Speed rpm : 375
Del.quantity cm³/ 1000 s: 18.5...22.5

Remarks:
: CASE # A62569

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8.3 j 4
 Edition : 13.02.1990
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 876 007

Injection pump
 Pump designation : PES6A80C420LS2054
 Governor
 Governor design. : RSV300...800A5B135DR

Customer-spec. information
 Customer : CASE

Engine : A 401 D

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Overflow valve
 : CASE

Inlet press., bar : 1.3

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm	:	9.00
Del.quantity cm ³ /	:	5.55...6.05
	100 s:	(-)
Spread	cm ³	: 0.4
	100 s:	(-)
2nd speed	rpm	: 1000
Rack travel in mm	:	15.00
Del.quantity cm ³ /	:	11.55...12.85
	100 s:	(-)
3rd speed	rpm	: 200
Rack travel in mm	:	6.00
Del.quantity cm ³ /	:	1.35...2.25
	100 s:	(-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 780
 Del.quantity : 66.5...68.5
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 40...48

Testing:
 1st rack travel in: 16.00
 Speed rpm : 810...830
 2nd rack travel in: 12.60
 Speed rpm : 855...885
 3rd rack travel in: 6.40
 Speed rpm : 925...955

LOW IDLE 1
 Control lever
 position degrees: 19...27
 Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 6.50

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 6.20...6.80
Rack travel in mm : 2.00
Speed rpm : 400
Speed rpm : 500
Maximum rack trave: 1.00

spring retainer.

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 0.20...0.50
2nd speed rpm : 600
Rack travel in m: 0.60...0.90
3rd speed rpm : 400
Rack travel in m: 0.80...1.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 71.5...74.5
1000 s: (-)
Speed rpm : 450
Del.quantity cm³/ : 70.5...75.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 800...815

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...89.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 880
Del.quantity cm³/ : 11.0...19.0
1000 s: (-)

Remarks:

: CASE # A22637

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 j 8
 Edition : 14.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 022

Injection pump
 Pump designation : PES6A85C420LS2054
 Governor
 Governor design. : RSV300...900A2B137DR

Customer-spec. information
 Customer : CASE

Engine : A-401

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9,00
 Del.quantity cm³/ : 5,65...6,02

100 s: (-)
 2nd speed rpm : 1000
 Rack travel in mm : 15,00
 Del.quantity cm³/ : 11,55...12,85
 100 s: (-)
 3rd speed rpm : 200
 Rack travel in mm : 6,00
 Del.quantity cm³/ : 1,35...2,25
 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 880
 Del.quantity : 79,8...81,8
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 35...43

LOW IDLE 1
 Control lever
 position degrees: 16...24
 Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 6,50
 Speed rpm : 300
 Rack travel in mm : 6,40...6,60

TORQUE CONTROL

Torque control curve - 1st version
 1st speed rpm : 900
 Rack travel in m: 9,00
 2nd speed rpm : 700
 Rack travel in m: 9,20...9,50
 3rd speed rpm : 600
 Rack travel in m: 9,60...9,90
 4th speed rpm : 450

Rack travel in m: 9,70...10,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ 1000 s: 78,5...81,5 (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 900...915

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 77,0...86,0 (-)

HIGH IDLE

1st version

Speed rpm : 985
Del.quantity cm³/ 1000 s: 10,0...18,0 (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8.3 j 3
 Edition : 13.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 036
 Injection pump
 Pump designation : PES6A80C420LS2054
 Governor
 Governor design. : RSV300...900A2B185DR
 Customer-spec. information
 Customer : CASE
 Engine : A 267 D

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45
 Overflow valve : CASE
 Inlet press., bar : 1.3
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm		: 9.00
Del.quantity cm3/		: 5.55...6.05
100 s:		(-)
Spread	cm3	: 0.4
100 s:		(-)
2nd speed	rpm	: 1000
Rack travel in mm		: 15.00
Del.quantity cm3/		: 11.55...12.85
100 s:		(-)
3rd speed	rpm	: 200
Rack travel in mm		: 6.00
Del.quantity cm3/		: 1.35...2.25
100 s:		(-)

GUIDE SLEEVE POSITION

Control-lever position	Degree:	-3
Speed	rpm	: 800
Rack travel in mm		: 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	Speed	rpm	: 880
	Del.quantity		: 63.5...65.5
	1000		: (-)

RATED SPEED

1st version	Control lever	position degrees:	38...46
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Testing:

1st rack travel in:	9.40	
Speed	rpm	: 905...925
2nd rack travel in:	7.20	
Speed	rpm	: 935...965
3rd rack travel in:	3.40...4.60	
Speed	rpm	: 985...1015
4th rack travel in:	1050	
Speed	rpm	: 0.0...1.00

LOW IDLE 1

Control lever	position degrees:	21...29	
Setting point w/out bumper spring	Speed	rpm	: 300

Rack travel in mm : 5.50

spring retainer.

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.20...5.60
Rack travel in mm : 2.75
Speed rpm : 400
Speed rpm : 500
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 0.50...0.80
2nd speed rpm : 400
Rack travel in m: 0.60...0.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 68.5...71.5
1000 s: (-)
Speed rpm : 500
Del.quantity cm³/ : 67.5...70.5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 900...915

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 77.0...86.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 990
Del.quantity cm³/ : 10.0...18.0
1000 s: (-)

Remarks:

: CASE # A34007

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 o
 Edition : 14.02.1990
 Replaces : -
 Test oil : ISO-4113

Injection pump
 Pump designation : PES6A90D420LS2354
 Governor
 Governor design. : RSV375...1050A2B710D
 R

Customer-spec. information
 Customer : CASE

Engine : A-504 BDT

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Inlet press., bar : 1.3

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.00

Del.quantity cm3/ : 4.8...5.1

100 s: (-)

Spread cm3 : 0.5

100 s: (-)

2nd speed rpm : 1000
 Rack travel in mm : 12.00
 Del.quantity cm3/ : 8.6...9.4
 100 s: (-)

3rd speed rpm : 200
 Rack travel in mm : 6.00
 Del.quantity cm3/ : 0.72...1.33

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800
 Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
 Del.quantity : 91.0...93.0
 1000 : (-)

RATED SPEED

1st version

Control lever
 position degrees: 36...44

Testing:

1st rack travel in: 12.20
 Speed rpm : 1060...1080
 2nd rack travel in: 8.70
 Speed rpm : 1085...1115
 3rd rack travel in: 4.50...6.20
 Speed rpm : 1135...1165
 4th rack travel in: 1250
 Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever
 position degrees: 14...22
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 7.80

Testing:

Speed rpm : 150
 Minimum rack trave: 19.00
 Speed rpm : 375
 Rack travel in mm : 7.50...8.10
 Rack travel in mm : 4.35

Speed rpm : 450
Speed rpm : 580
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: -
2nd speed rpm : 500
Rack travel in m: 0.10...0.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ 1000 s: 91.0...95.0
Speed rpm : 650
Del.quantity cm³/ 1000 s: < 94.0

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 134.0...144.0

HIGH IDLE

1st version
Speed rpm : 1150
Del.quantity cm³/ 1000 s: 14.0...18.0

LOW IDLE

Speed rpm : 375
Del.quantity cm³/ 1000 s: 18.0...22.5

Remarks:
: CASE # A66215

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 d 1
 Edition : 25.01.1990
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 276 050

Injection pump
 Pump designation : PES6A100D410RS3036
 Governor
 Governor design. : RSV600...1000A2B2082
 L

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466A

1st version kW : 125
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Test oil
 Outlet temp. °C : -

Overflow valve : 1 413 385 007

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05
 : (1.90...2.10)

Rack travel in mm : 10.5
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.8

Del.quantity cm³/ : 10.8...11.1

100 s: (-)

Spread cm³ : 0.3

100 s: (-)

2nd speed rpm : 400

Rack travel in mm : 6.6

Del.quantity cm³/ : 1.3...1.7

100 s: (-)

Spread cm³ : 0.3

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.3...1.0

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 800

Del.quantity : 108.0...111.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.8

Speed rpm : 1145...1155

2nd rack travel in: 4.0

Speed rpm : 1205...1235

4th rack travel in: 1300

Speed rpm : 0.3...1.7
 + 1mm rack travel less than
 LOW IDLE 1
 Control lever
 position degrees: 16...24
 Setting point w/out bumper spring
 Speed rpm : 400
 Rack travel in mm : 6.1
 + full load rack tr: 9.8
 Speed rpm : 1145...1155
 STARTING FUEL DELIVERY
 Testing:
 Speed rpm : 100
 Minimum rack trave: 19.0
 Speed rpm : 400
 Rack travel in mm : 6.6
 Rack travel in mm : 2.0
 Speed rpm : 480...540
 Speed rpm : 850
 Maximum rack trave: 1.0
 Speed rpm : 100
 Del.quantity cm³/ 1000 s: (-)
 HIGH IDLE
 1st version
 Speed rpm : 1200
 Del.quantity cm³/ 1000 s: (-)
 LOW IDLE
 Speed rpm : 400
 Del.quantity cm³/ 1000 s: (-)
 Remarks:
 Start-of-delivery mark at control-rod
 travel 10.5 mm and 15° after start of
 delivery.
 Aneroid/Altitude
 Compensator Test
 1st version
 Setting
 Speed rpm : 500
 Pressure hPa : 270
 Rack travel mm : 11.75...11.85
 Measurement
 Speed 1/min : 500
 1st pressure hPa : 170
 Rack travel in m: 10.50...10.90
 FUEL DELIVERY CHARACTERISTICS
 1st version
 Aneroid pressure h: 800
 Speed rpm : 650
 Del.quantity cm³/ 1000 s: (-)
 115.5...118.5
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ 1000 s: (-)
 77.5...80.5
 BREAKAWAY
 1st version
 H2O

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : AL0 13,8 j
 Edition : 16.02.1990
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 401 846 347

 Injection pump
 Pump designation : PE6P120A420LS316
 Governor
 Governor design. : RQV300...1050PA312KR

 Customer-spec. information
 Customer : ALLIS CHALMERS

 Engine : 25 000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.5

 Test nozzle holder assembly : 0 681 443 022

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 060

 Outside diameter x Wall thickness x Length mm : 8.00X2.00X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.8...2.9
 : (2.75...2.95)
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

 Rack travel in mm : 12.00

Del.quantity cm ³ /	: 26.7...27.3
100 s:	(-)
Spread cm ³	: 1.2
100 s:	(-)

2nd speed rpm	: 600
Rack travel in mm	: 15.00
Del.quantity cm ³ /	: 32.8...35.3
100 s:	(-)
3rd speed rpm	: 200
Rack travel in mm	: 6.00
Del.quantity cm ³ /	: 3.5...4.5
100 s:	(-)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL	
1st speed rpm	: 400
travel mm	: 1.8...2.7
2nd speed rpm	: 550
travel mm	: 3.8...4.2
3rd speed rpm	: 1000
travel mm	: 7.5...7.9
4th speed rpm	: 1245
travel mm	: 10.9...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version	
Speed rpm	: 1050
Del.quantity	: 256.0...258.0
1000	: (-)

RATED SPEED

1st version	
Control lever position	degrees: 62...70

Testing:

1st rack travel in:	16.50
Speed rpm	: 1040...1060
2nd rack travel in:	12.85
Speed rpm	: 1085...1115
3rd rack travel in:	6.00...11.60
Speed rpm	: 1150
4th rack travel in:	1210
Speed rpm	: 0.00...7.00
5th rack travel in:	1300
Speed rpm	: 0.00...1.00

LOW IDLE 1

Control lever position	degrees: 6...14
------------------------	-----------------

Testing:

Speed rpm : 250
Minimum rack trave: 6.40
Speed rpm : 350
Rack travel in mm : 3.00...5.20
Rack travel in mm : 2.05
Speed rpm : 435...465
Speed rpm : 550
Maximum rack trave: 1.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 480
Rack travel mm : -0.10...-0.30

Measurement

Speed 1/min : 500

1st pressure hPa : 330
Rack travel in m: -4.15...-4.55

START CUT-OUT

Speed 1/min : 150...250

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm³/ : 238.0...244.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 171.0...179.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...160.0
1000 s: (-)

LOW IDLE

H22

Speed rpm : 300
Del.quantity cm³/ : 19.0...25.0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 8,0 p
 Edition : 14.02.1990
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 846 351

Injection pump
 Pump designation : PE6P100A720RS332
 Governor
 Governor design. : RQV200...1200PA168R

Customer-spec. information
 Customer : SCANIA

Engine : DS 8

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.5...2.6
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.10

Del.quantity cm³/ : 13.4...13.8

100 s: (-)

Spread cm³ : 0.5

100 s: (-)

2nd speed rpm : 225

Rack travel in mm : 6.00

Del.quantity cm³/ : 1.0...1.2

100 s: (-)

Spread cm³ : 0.15

100 s: (-)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 260

Del.quantity : 134.0...138.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 16.30

Speed rpm : 1190...1210

2nd rack travel in: 10.95

Speed rpm : 1285...1315

3rd rack travel in: 1.40...8.10

Speed rpm : 1385...1415

4th rack travel in: 1550

Speed rpm : -

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 200

Minimum rack trave: 6.20

Speed rpm : 300

Rack travel in mm : 3.70...5.90

Rack travel in mm : 2.85

Speed rpm : 400

Speed rpm : 500

Maximum rack trave: 1.00

Aneroid/Altitude

Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 260
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.00...12.20

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: ?
Speed rpm : 1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190...240
1000 s: (-)

LOW IDLE

Speed rpm : 225
Del.quantity cm³/ : 11.0...13.0
1000 s: (-)

Remarks:
: MACK ENDT 475

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : WAU 1 a
 Edition : 14.02.1990
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 876 043

Injection pump
 Pump designation : PE6P130/420LS67
 Governor
 Governor design. : RSV300..900P4/308DR

Customer-spec. information
 Customer : WAUKESHA

Engine : F-1197D

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 443 022

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 026

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.0...2.1
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 9.00

Del.quantity cm³/ : 20.7...21.4

100 s: (-)

Spread cm³ : 0.8

100 s: (-)

2nd speed rpm : 600
 Rack travel in mm : 12.00
 Del.quantity cm³/ : 28.2...28.9

100 s: (-)

3rd speed rpm : 200

Rack travel in mm : 6.00

Del.quantity cm³/ : 4.6...6.0
 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 225.0...229.0
 1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 16.00

Speed rpm : 890...910

2nd rack travel in: 11.00

Speed rpm : 925...955

3rd rack travel in: 3.00...5.00

Speed rpm : 985...1015

4th rack travel in: 1100

Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.00

Testing:

Speed rpm : 100

Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.70...6.30
Rack travel in mm : 3.70
Speed rpm : 400
Speed rpm : 580
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 880
Rack travel in m: -
2nd speed rpm : 600
Rack travel in m: -
3rd speed rpm : 500
Rack travel in m: 0.10...0.30
4th speed rpm : 360
Rack travel in m: 0.40...0.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 234.0...240.0
1000 s: (-)
Speed rpm : 500
Del.quantity cm³/ : 226.0...232.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: ?
Speed rpm : 920

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 589.0...591.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 970
Del.quantity cm³/ : 28.0...38.0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : WAU 1 a 2
 Edition : 14.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 045
 Injection pump
 Pump designation : PE6P130/420LS67
 Governor
 Governor design. : RSV300..900P4/308DR
 Customer-spec. information
 Customer : WAUKESHA
 Engine : F-1197D

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45
 Inlet press., bar : 1.5
 Test nozzle holder assembly : 0 681 443 022
 Opening pressure, bar : 172...175
 Test Lines : 1 680 750 026
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.0...2.1
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 9.00
 Del.quantity cm³/ : 20.7...21.4

100 s: (-)
 Spread cm³ : 0.8
 100 s: (-)
 2nd speed rpm : 600
 Rack travel in mm : 12.00
 Del.quantity cm³/ : 28.2...28.9
 100 s: (-)
 3rd speed rpm : 200
 Rack travel in mm : 6.00
 Del.quantity cm³/ : 4.6...6.0
 100 s: (-)

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40
 Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 900
 Del.quantity : 225.0...229.0
 1000 : (-)

RATED SPEED
 1st version
 Control lever
 position degrees: 48...56

Testing:
 1st rack travel in: 16.00
 Speed rpm : 890...910
 2nd rack travel in: 11.00
 Speed rpm : 925...955
 3rd rack travel in: 3.00...5.00
 Speed rpm : 985...1015
 4th rack travel in: 1100
 Speed rpm : 0.0...1.00

LOW IDLE 1
 Control lever
 position degrees: 20...28
 Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 6.00

Testing:
 Speed rpm : 100

Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.70...6.30
Rack travel in mm : 3.70
Speed rpm : 400
Speed rpm : 580
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 880
Rack travel in m: -
2nd speed rpm : 600
Rack travel in m: -
3rd speed rpm : 500
Rack travel in m: 0.10...0.30
4th speed rpm : 360
Rack travel in m: 0.40...0.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 234.0...240.0
1000 s: (-)
Speed rpm : 500
Del.quantity cm³/ : 226.0...232.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: ?
Speed rpm : 920

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 589.0...591.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 970
Del.quantity cm³/ : 28.0...38.0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : WAU 1 a 2
 Edition : 14.02.1990
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 876 098

Injection pump
 Pump designation : PE6P130A420LS67
 Governor
 Governor design. : RSV300...900P4/308DR

Customer-spec. information
 Customer : WAUKESHA

Engine : F-1197 D

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 443 022

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 026

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.0...2.1
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 9.00

Del.quantity cm³/ : 20.7...21.4

100 s: (-)

Spread cm³ : 0.8

100 s: (-)

2nd speed rpm : 600

Rack travel in mm : 12.00

Del.quantity cm³/ : 28.3...30.1

100 s: (-)

3rd speed rpm : 200

Rack travel in mm : 6.00

Del.quantity cm³/ : 4.6...6.3

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 225.0...229.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 16.00

Speed rpm : 890...910

2nd rack travel in: 11.00

Speed rpm : 925...955

3rd rack travel in: 3.00...5.00

Speed rpm : 985...1015

4th rack travel in: 1100

Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.00

Testing:

Speed rpm : 100

Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.70...6.30
Rack travel in mm : 3.70
Speed rpm : 400
Speed rpm : 360
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 880
Rack travel in m: -
2nd speed rpm : 600
Rack travel in m: -
3rd speed rpm : 500
Rack travel in m: 0.10...0.30
4th speed rpm : 360
Rack travel in m: 0.40...0.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 234.0...240.0
1000 s: (-)
Speed rpm : 500
Del.quantity cm³/ : 226.0...232.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: ?
Speed rpm : 920

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 589.0...591.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 970
Del.quantity cm³/ : 28.0...38.0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q 4
 Edition : 2.1.90
 Replaces : 5.8.88
 Test oil : ISO-4113

Combination no. : 0 401 876 740

Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-
⁴
 Governor no. : 0 421 833 179

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
¹ : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.3...3.6

Del.quantity cm³/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 56...64	Remarks: Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.
Testing:	:
1st rack travel in: 10.00 Speed rpm : 1210...1220	
2nd rack travel in: 4.00 Speed rpm : 1235...1255	When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.
4th rack travel in: 1350 Speed rpm : 0.30...1.40	
LOW IDLE 1	Test specifications apply to injection-pump assemblies on engines up to end number 421...123 021
Control lever position degrees: 32...40	APPLICATION
Setting point w/out bumper spring	
Speed rpm : 750	Combine-harvester
Rack travel in mm : 3.4	
Speed rpm : 750	
Rack travel in mm : 3.30...3.50	
Rack travel in mm : 2.00	
Speed rpm : 755...815	
SET IDLE AUXILIARY SPRING	
Rack travel in mm : 2.00	
TORQUE CONTROL	
Torque control curve - 1st version	
1st speed rpm : 1180 Rack travel in m: 11.00...11.10	
2nd speed rpm : 975 Rack travel in m: 11.40...11.60	
3rd speed rpm : 600 Rack travel in m: 11.80...12.00	
FUEL DELIVERY CHARACTERISTICS	
1st version	
Speed rpm : 950	
Del.quantity cm ³ / 1000 s: (174.0...178.0)	
Spread cm ³ : 8.00	
1000 s: (12.0)	
BREAKAWAY	
1st version	
1mm rack travel less than	
full load rack tr: 10.00	
Speed rpm : 1210...1220	
STARTING FUEL DELIVERY	
Speed rpm : 100	
Del.quantity cm ³ / 1000 s: (140.0...160.0)	
1000 s: (136.0...164.0)	

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q 8
 Edition : 2.1.90
 Replaces : 18.12.87
 Test oil : ISO-4113

Combination no. : 0 401 876 740A

Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-
 4
 Governor no. : 0 421 833 179

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 15.3...15.5

100 s: (15.0...15.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.3...3.5

Del.quantity cm³/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180
 Del.quantity : 153.0...155.0

: (150.0...158.0)

Spread cm³ : 5.00

: (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Testing:

1st rack travel in: 9.40
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 10.40...10.50
2nd speed rpm : 975
Rack travel in m: 11.00...11.20
3rd speed rpm : 600
Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 950
Del.quantity cm³/ 1000 s: 164.0...168.0
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:
Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

Test specifications apply to
injection-pump assemblies on engines
up to end number 421...123 021
APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11.0 q 9
 Edition : 2.1.90
 Replaces : 18.12.87
 Test oil : ISO-4113

 Combination no. : 0 401 876 7408

 Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-
 4
 Governor no. : 0 421 833 179

 Customer-spec. information
 Customer : DAIMLER-BENZ

 Engine : OM421A

 1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 100...120

 Test nozzle holder
 assembly : 1 688 901 019

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test Lines : 1 680 750 067

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 15.7...15.9

100 s: (15.4...16.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.3...3.5

Del.quantity cm³/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 157.0...159.0

1000 : (154.0...162.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever	Remarks:
position degrees: 56...64	: Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.
Testing:	
1st rack travel in: 9.70	
Speed rpm : 1210...1220	
2nd rack travel in: 4.00	
Speed rpm : 1240...1260	
4th rack travel in: 1350	
Speed rpm : 0.30...1.40	
LOW IDLE 1	
Control lever	
position degrees: 32...40	
Setting point w/out bumper spring	
Speed rpm : 750	
Rack travel in mm : 3.4	
Speed rpm : 750	
Rack travel in mm : 3.30...3.50	
Rack travel in mm : 2.00	
Speed rpm : 755...815	
SET IDLE AUXILIARY SPRING	
Rack travel in mm : 2.00	
TORQUE CONTROL	
Torque control curve - 1st version	
1st speed rpm : 1180	
Rack travel in m: 10.70...10.80	
2nd speed rpm : 950	
Rack travel in m: 11.20...11.40	
3rd speed rpm : 1075	
Rack travel in m: 11.00...11.20	
FUEL DELIVERY CHARACTERISTICS	
1st version	
Speed rpm : 950	
Del.quantity cm ³ / : 168.0...172.0	
1000 s: (165.0...175.0)	
Spread cm ³ : 8.00	
1000 s: (12.0)	
BREAKAWAY	
1st version	
1mm rack travel less than	
full load rack tr: 9.70	
Speed rpm : 1210...1220	
STARTING FUEL DELIVERY	
Speed rpm : 100	
Del.quantity cm ³ / : 140.0...160.0	
1000 s: (136.0...164.0)	

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q10
 Edition : 2.1.90
 Replaces : 18.12.87
 Test oil : ISO-4113

Combination no. : 0 401 876 740C

Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-
 4
 Governor no. : 0 421 833 179

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm - : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0~45~120~165~240~285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.10...10.20

Del.quantity cm³/ : 14.8...15.0

100 s: (14.5...15.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.3...3.5

Del.quantity cm³/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 148.0...150.0

1000 : (145.0...153.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Testing:

1st rack travel in: 9.10
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 10.10...10.20
2nd speed rpm : 950
Rack travel in m: 10.50...10.70
3rd speed rpm : 1075
Rack travel in m: 10.30...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 950
Del.quantity cm³/ : 159.0...163.0
1000 s: (156.0...166.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:
Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

Test specifications apply to
injection-pump assemblies on engines
as of end number 421...123 022
APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q 7
 Edition : 2.1.90
 Replaces : 11.12.87
 Test oil : ISO-4113
 Combination no. : 0 401 876 753
 Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-
 6
 Governor no. : 0 421 833 227
 Customer-spec. information
 Customer : DAIMLER-BENZ
 Engine : OM421A
 1st version kW : 184.0
 Rated speed : 2300
 2nd version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 15.7...15.9

100 s: (15.4...16.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0
 Rack travel in mm : 3.4...3.6
 Del.quantity cm³/ : 1.8...2.4
 100 s: (1.5...2.7)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1180
 Del.quantity : 157.0...159.0
 1000 : (154.0...162.0)
 Spread cm³ : 5.00
 1000 : (9.00)
 2nd version

Speed rpm : 1180
Del.quantity cm³/ : 148.0...150.0
1000 s: (145.0...153.0)
Spread cm³ : 5.00
1000 s: (9.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:
1st rack travel in: 9.70
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 10.70...10.80
2nd speed rpm : 950
Rack travel in m: 11.20...11.40
3rd speed rpm : 1075
Rack travel in m: 11.00...11.20

START CUT-OUT

Speed 1/min : 5 (0)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 950
Del.quantity cm³/ : 168.0...172.0
1000 s: (165.0...175.0)
Spread cm³ : 8.00
1000 s: (12.0)

2nd version
Speed rpm : 975

Del.quantity cm³/ : 159.0...163.0
1000 s: (156.0...166.0)
Spread cm³ : 9.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:
Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

Test specifications apply to
injection-pump assemblies on engines
as of end number 421...123 022

APPLICATION

Version 1 = Combine harvester
Version 2 = Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q11
 Edition : 2.1.90
 Replaces : 18.12.87
 Test oil : ISO-4113

Combination no. : 0 401 876 753A

Injection pump :
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor :
 Governor design. : RSV750...1150P1A820-6
 Governer no. : 0 421 833 227

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.10...10.20

Del.quantity cm³/ : 14.8...15.0

100 s: (14.5...15.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.4...3.6

Del.quantity cm³/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 148.0...150.0

1000 : (145.0...153.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Remarks:

:
Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

Testing:
1st rack travel in: 9.10
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.40

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

Test specifications apply to
injection-pump assemblies on engines
as of end number 421...123 022
APPLICATION

Forage harvester

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 10.10...10.20
2nd speed rpm : 950
Rack travel in m: 10.50...10.70
3rd speed rpm : 1075
Rack travel in m: 10.30...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 950
Del.quantity cm³/ : 159.0...163.0
1000 s: (156.0...166.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q12
 Edition : 2.1.90
 Replaces : 18.12.87
 Test oil : ISO-4113

Combination no. : 0 401 876 753B

Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-
 6
 Governor no. : 0 421 833 227

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.4...3.6

Del.quantity cm³/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : β

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Remarks:

:
Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

Testing:
1st rack travel in: 10.20
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1235...1255
4th rack travel in: 1350
Speed rpm : 0.30...1.40

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

LOW IDLE 1
Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

Test specifications apply to
injection-pump assemblies on engines
up to end number 421...123 021

APPLICATION

Combine-harvester

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 11.20...11.30
2nd speed rpm : 950
Rack travel in m: 11.70...11.80
3rd speed rpm : 1075
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 950
Del.quantity cm³/ : 174.0...178.0
1000 s: (171.0...181.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q13
 Edition : 2.1.90
 Replaces : 18.12.87
 Test oil : ISO-4113

Combination no. : 0 401 876 753C

Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-
 6
 Governor no. : 0 421 833 227

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 15.3...15.5

100 s: (15.0...15.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.4...3.6

Del.quantity cm³/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180
 Del.quantity : 153.0...155.0

1000 : (150.0...158.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever	Remarks:
position degrees: 56...64	: Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.
Testing:	
1st rack travel in: 9.40	
Speed rpm : 1210...1220	
2nd rack travel in: 4.00	
Speed rpm : 1240...1260	
4th rack travel in: 1350	
Speed rpm : 0.30...1.40	
LOW IDLE 1	
Control lever	
position degrees: 32...40	
Setting point w/out bumper spring	
Speed rpm : 750	
Rack travel in mm : 3.4	
Speed rpm : 750	
Rack travel in mm : 3.30...3.50	
Rack travel in mm : 2.00	
Speed rpm : 755...815	
SET IDLE AUXILIARY SPRING	
Rack travel in mm : 2.00	
TORQUE CONTROL	
Torque control curve - 1st version	
1st speed rpm : 1180	
Rack travel in m: 10.40...10.50	
2nd speed rpm : 950	
Rack travel in m: 11.00...11.20	
3rd speed rpm : 1075	
Rack travel in m: 10.60...10.80	
FUEL DELIVERY CHARACTERISTICS	
1st version	
Speed rpm : 950	
Del.quantity cm ³ / : 164.0...168.0	
1000 s: (161.0...171.0)	
Spread cm ³ : 8.00	
1000 s: (12.0)	
BREAKAWAY	
1st version	
1mm rack travel less than	
full load rack tr: 9.40	
Speed rpm : 1210...1220	
STARTING FUEL DELIVERY	
Speed rpm : 100	
Del.quantity cm ³ / : 150.0...170.0	
1000 s: (146.0...174.0)	

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,4 a 5
 Edition : 26.01.1990
 Replaces : -
 Test oil : ISO 4113
 Combination no. : 0 402 058 044

Injection pump
 Pump designation : PES8P100A921/5RS286
 Governor
 Governor design. : RQV300...1300PA444KR

Customer-spec. information
 Customer : IHC

Engine : DVT 800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Overflow valve : 1 417 413 040

Inlet press., bar : 2.75

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 204...207

Test lines : 9 681 230 713

Outside diameter
 x Wall thickness
 x Length mm : 6.35X2.12X1016

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.8...2.9
 : (-)
 Rack travel in mm : 10.5
 Firing order : 1-8-4-2-7-3-6-5
 Phasing : 45-90-135-180-225-

270-315
 Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.2

Del.quantity cm³/ : 11.4...11.6

100 s: (-)

Spread cm³ : 0.3

100 s: (-)

2nd speed rpm : 300

Rack travel in mm : 5.0

Del.quantity cm³/ : 1.7...2.1

100 s: (-)

Spread cm³ : 0.3

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1320

Rack travel in mm : 15.0...17.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 800

Del.quantity : 114.0...116.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 59.5...63.5

Testing:

1st rack travel in: 9.2

Speed rpm : 1340...1350

2nd rack travel in: 4.0

Speed rpm : 1420...1450

3rd rack travel in: 0.0...1.0

Speed rpm : 1640

LOW IDLE 1

Control lever

position degrees: 8.5...13.5

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.1

Speed rpm : 300
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 425...485

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.15...10.25
2nd speed rpm : 900
Rack travel in m: 10.45...10.55
3rd speed rpm : 700
Rack travel in m: 10.05...10.15

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 800
Pressure hPa : 215
Rack travel mm : *

Measurement
Speed 1/min : 800

1st pressure hPa : 395
Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 900
Del.quantity cm³/ : 118.0...120.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm³/ : 84.0...88.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.2
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 184.0...224.0
1000 s: (-)

HIGH IDLE

J20

1st version
Aneroid pressure h: -
Speed rpm : -
Del.quantity cm³/ : -
1000 s: (-)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 17.0...21.0

Remarks:

Perform pump setting only with IH hose
with 1.57 mm diameter restriction.

* Start of LDA (manifold-pressure compensator) movement

** Ende der LDA-Bewegung
Start-of-delivery mark is made at
start of delivery of cylinder 1 with
idle control-rod travel

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 k 1
 Edition : 14.02.1990
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 076 007

Injection pump
 Pump designation : PES6P100A720RS1010
 Governor
 Governor design. : RSV400...900P7/379R

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6531 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 705

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.4...2.5
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.00

Del.quantity cm³/ : 12.8...13.4

100 s: (-)

Spread cm³ : 0.5

100 s: (-)

2nd speed rpm : 600

Rack travel in mm : 15.00

Del.quantity cm³/ : 17.6...19.0

100 s: (-)

3rd speed rpm : 200

Rack travel in mm : 9.00

Del.quantity cm³/ : 4.2...5.2

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 890

Del.quantity : 142.0...144.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 54...62

Testing:

1st rack travel in: 16.00

Speed rpm : 890...910

2nd rack travel in: 11.80

Speed rpm : 915...945

3rd rack travel in: 5.60

Speed rpm : 925...955

4th rack travel in: 1050

Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever

position degrees: 26...34

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 7.10

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 400

Rack travel in mm : 6.80...7.40

Rack travel in mm : 2.75

Speed rpm : 500
Speed rpm : 630
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 880
Rack travel in m: -
2nd speed rpm : 430
Rack travel in m: 0.60...1.20

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: ?
Speed rpm : 910...915

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150...190
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 940
Del.quantity cm³/ : 16.0...25.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ : 20.0...27.0
1000 s: (-)

Remarks:
: JOHN DEERE # AR64215

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 L 3
 Edition : 26.01.1990
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 076 031

Injection pump
 Pump designation : PES6P110A720RS305
 Governor
 Governor design. : RSV400...1050P7/420D
 R

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.78...2.85
 : (2.70...2.90)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4-

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1040

Rack travel in mm : 11.7

Del.quantity cm³/ : 15.7...15.9

100 s: (-)

Spread cm³ : 0.4

100 s: (-)

2nd speed rpm : 400

Rack travel in mm : 6.0

Del.quantity cm³/ : 1.9...2.5

100 s: (-)

Spread cm³ : 0.4

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1040

Del.quantity : 157.0...159.0

1000 : (155.0...161.0)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 11.7

Speed rpm : 1030

2nd rack travel in: 10.7

Speed rpm : 1070

3rd rack travel in: 4.0...6.0

Speed rpm : 1110

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.0
Speed rpm : 400
Rack travel in mm : 6.3
Rack travel in mm : 2.0
Speed rpm : 450...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 650
Rack travel in m: 0.6

START CUT-OUT

Speed 1/min : 350...450

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 169.0...173.0
1000 s: (167.0...175.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.7
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1100
Del.quantity cm³/ : 17.0...27.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ : 19.0...25.0
1000 s: (-)

Remarks:

: JOHN DEERE # AR79943
Start-of-delivery mark = 13.25° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10.1 d6
 Edition : 26.01.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 042
 Injection pump
 Pump designation : PES6P110A720RS296
 Governor
 Governor design. : RSV400...1050P7/438D
 R
 Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00X1,50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Rack travel in mm : 9.0...12.0
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1040

Rack travel in mm : 11.0

Del.quantity cm³/ : 14.7...14.9

100 s: (-)

Spread cm³ : 0.4

100 s: (-)

2nd speed rpm : 400

Rack travel in mm : 6.1

Del.quantity cm³/ : 1.9...2.5

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1040

Del.quantity : 147.0...149.0

1000 : (145.0...151.0)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 10.0

Speed rpm : 1060...1080

2nd rack travel in: 4.1

Speed rpm : 1085...1115

LOW IDLE 1

Control lever

position degrees: 24...32

Testing:

Speed rpm : 100

Minimum rack trave: 19.0

Speed rpm : 370

Rack travel in mm : 9.9...10.1

Rack travel in mm : 6.1

Speed rpm : 400

Speed rpm : 440
Maximum rack travel: 2.0

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 450
Rack travel in m: 11.7...12.3

START CUT-OUT

Speed 1/min : 400...750

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1040
Del.quantity cm³/ 1000 s: 147.0...149.0
1000 s: (145.0...151.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.0
Speed rpm : 1060...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: (-)
1000 s: 190.0...210.0

HIGH IDLE

1st version
Speed rpm : 1100
Del.quantity cm³/ 1000 s: (-)
1000 s: 17.0...27.0

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ 1000 s: (-)
1000 s: 19.0...25.0

Remarks: : JOHN DEERE # AR81969
Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 16,0 c1
 Edition : 16.02.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 877

Injection pump
 Pump designation : PE6P130A720RS7122-1
 EP type number : 0 412 636 812
 Governor
 Governor design. : RQV225...930PA922
 Governer no. : 0 421 813 763

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD162 FL,FJ,

1st version kW : 331.0
 Rated speed : 1860

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 30.0...30.3

100 s: (29.7...30.7)

Spread cm³ : 0.6

100 s: (1.0)

2nd speed rpm : 250.0

Rack travel in mm : 5.0...5.2

Del.quantity cm³/ : 2.5...3.0

100 s: (2.3...3.3)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 350

travel mm : 2.10...2.70

3rd speed rpm : 700

travel mm : 5.60...6.20

4th speed rpm : 975

travel mm : 8.20...8.40

5th speed rpm : 1090

travel mm : 9.50...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 7.70...10.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 700

Del.quantity : 300.5...303.5
1000 : (297.0...307.0)
Spread cm³ : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 12.50
Speed rpm : 970...980
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 250
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 250...450

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.50...13.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 110
Rack travel in m: 9.80...9.90
3rd pressure hPa : 720
Rack travel in m: 13.10...13.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 180.0...183.0
1000 s: (176.5...183.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 970...980

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (121.0...149.0)
Rack travel in mm : 9.50...9.70

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.00...5.20
Del.quantity cm³/ : 25.5...30.5
1000 s: (23.0...33.0)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 12,2 f
 Edition : 02.02.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 882

Injection pump
 Pump designation : PES6P120A320RS7156-1
 EP type number : 0 412 726 830
 Governor
 Governor design. : RQV300...1050PA941
 Governer no. : 0 421 813 834

Customer-spec. information
 Customer : PERKINS

Engine : 2006 TW-H

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 2- 6- 3- 5

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ :

100 s: (?)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ :

100 s: (?)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm		: 1.10...1.50
2nd speed	rpm	: 370
travel mm		: 3.30...3.90
3rd speed	rpm	: 700
travel mm		: 4.70...5.30
4th speed	rpm	: 1110
travel mm		: 5.40...5.60
5th speed	rpm	: 1250
travel mm		: 8.60...9.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1220

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1200

Del.quantity :

1000 : (?)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:
1st rack travel in: 12.60
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 200
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 300...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.60...13.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.00...11.20
2nd pressure hPa : 600
Rack travel in m: 13.00...13.10

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:
:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Full-load delivery not known. Set
according to engine test report.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 17
 Edition : 12.02.90
 Replaces : 30.09.88
 Test oil : ISO-4113

Combination no. : 0 403 446 150

Injection pump
 Pump designation : PES6MW100/720RS1120
 EP type number : 0 413 406 112
 Governor
 Governor design. : RQV300...1300MW59
 Governer no. : 0 420 083 077

Customer-spec. information
 Customer : DB

Engine : OM366LA

1st version kW : 141.7
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.2

Del.quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 11.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.10...6.20

CONSTANT REGULATION

Speed rpm : 320...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 310
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 12.10...12.20
2nd pressure hPa : -
Rack travel in m: 11.00...11.10
3rd pressure hPa : 280
Rack travel in m: 11.20...11.50

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 73.0...76.0
1000 s: (70.5...78.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.10...6.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 47
 Edition : 12.02.90
 Replaces : 13.06.88
 Test oil : ISO-4113
 Combination no. : 0 403 446 156
 Injection pump
 Pump designation : PES6MW100/720RS1120
 EP type number : 0 413 406 112
 Governor
 Governor design. : RQV300...1300MW59
 Governer no. : 0 420 083 077
 Customer-spec. information
 Customer : DB
 Engine : OM366LA
 1st version kW : 141.7
 Rated speed : 2600
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
BASIC SETTING
 1st speed rpm : 1300
 Rack travel in mm : 12.10...12.20
 Del.quantity cm³/ : 8.6...8.8
 : 100 s: (8.4...9.0)
 Spread cm³ : 0.3
 : 100 s: (0.6)
 2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm³/ : 0.9...1.3
 : 100 s: (0.7...1.5)
 Spread cm³ : 0.3
 : 100 s: (0.5)
(B) Setting of injection pump with governor
GUIDE SLEEVE TRAVEL
 1st speed rpm : 1450
 travel mm : 9.50...9.90
 2nd speed rpm : 1350
 travel mm : 8.50...8.70
 3rd speed rpm : 450
 travel mm : 2.40...3.00
 4th speed rpm : 300
 travel mm : 1.20...1.60
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1340
 Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 1300
 Aneroid pressure h: 700
 Del.quantity : 86.0...88.0
 : 1000 : (84.0...90.0)
 Spread cm³ : 3.50
 : 1000 : (6.00)
RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 11.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack trav: 8.00
Speed rpm : 300
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 320...550

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 310
Rack travel mm : 11.80...11.90

Measurement

Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 12.10...12.20
Rack travel in m: 11.00...11.10
3rd pressure hPa : 280
Rack travel in m: 11.20...11.50

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 73.0...76.0
1000 s: (70.5...78.5)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB vorl.
 Edition : 07.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 191
 Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1200MW48-5
 Governor no. : 0 420 083 140
 Customer-spec. information
 Customer : DAIMLER-BENZ
 Engine : OM366A
 1st version kW : 116.0
 Rated speed : 2400
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.1

Del.quantity cm³/ : 1.0...1.4

100 s: (0.9...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 7.30...7.50

2nd speed rpm : 1380

travel mm : 8.50...8.90

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:

1st rack travel in: 9.80
Speed rpm : 1250...1260
2nd rack travel in: 4.00
Speed rpm : 1350...1380
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24

Testing:

Speed rpm : 100
Minimum rack trave: 9.80
Speed rpm : 300
Rack travel in mm : 8.00...8.10

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.80...10.90
2nd speed rpm : 700
Rack travel in m: 11.10...11.20
3rd speed rpm : 800
Rack travel in m: 10.90...11.10

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 62.0...64.0
1000 s: (60.0...66.0)
Spread cm³ : 5.00
1000 s: (7.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.10
Del.quantity cm³/ : 10.0...14.0
1000 s: (9.0...15.0)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 82
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 225
 Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1400MW48-11
 Governer no. : 0 420 083 190
 Customer-spec. information
 Customer : MB-NFZ
 Engine : OM366A
 1st version kW : 125.0
 Rated speed : 2800
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm³/

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm³/

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1470

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.50...11.70
3rd speed rpm : 1000
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 67.5...70.5
1000 s: (65.0...73.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 71
 Edition : 16.02.90
 Replaces : 13.10.89
 Test oil : ISO-4113

Combination no. : 0 403 446 226

Injection pump
 Pump designation : PES6MW100/720RS1131-

EP type number : 0 413 406 165

Governor

Governor design. : RQ300/1300MW105

Governor no. : 0 420 082 039

Customer-spec. information

Customer : MB-NFZ

Engine : OM366LA

1st version kW : 177.0

Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 14.60...14.70

Del.quantity cm³/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...9.80

2nd speed rpm : 1360

travel mm : 7.20...7.40

3rd speed rpm : 550

travel mm : 4.20...4.80

4th speed rpm : 300

travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 1200

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 38...46

Setting point:
Speed rpm : 1200
Rack travel in mm : 15.5

Testing:
1st rack travel in: 13.60
Speed rpm : 1345...1360
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:
Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 6.30...6.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.60...10.70

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 10.90...11.10
2nd pressure hPa : 500
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1000
Rack travel in m: 14.60...14.70

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750

Del.quantity cm³/ : 111.0...115.0
1000 s: (109.0...117.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 41.0...43.0
1000 s: (39.0...45.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.60
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 81
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 446 231

Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1400MW48-8
 Governer no. : 0 420 083 175

Customer-spec. information

Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550
 travel mm : 9.20...9.60

2nd speed rpm : 1450
 travel mm : 8.30...8.50

3rd speed rpm : 550
 travel mm : 2.80...3.40

4th speed rpm : 300
 travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1470

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400
 Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 49...57

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 12.10...12.30
3rd speed rpm : 950
Rack travel in m: 11.80...12.10
4th speed rpm : 1200
Rack travel in m: 11.00...11.30

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 80
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 446 232

Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1400MW48-11
 Governer no. : 0 420 083 190

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1470

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.50...11.70
3rd speed rpm : 1000
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 67.5...70.5
1000 s: (65.0...73.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 4
 Edition : 01.02.90
 Replaces : 18.08.89
 Test oil : ISO-4113

Combination no. : 0 403 446 233

Injection pump
 Pump designation : PES6MW100/320RS1171
 EP type number : 0 413 406 156
 Governor
 Governor design. : RQV300...1400MW97-1
 Governer no. : 0 420 083 195

Customer-spec. information
 Customer : RVI

Engine : MIDS060212C

1st version kW : 97.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test Lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.50...9.60

Del.quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.50...5.70

Del.quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1570

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 500

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 8.50
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1540...1570
4th rack travel in: 1700
Speed rpm : 0.00...1.00

Remarks:

:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

LOW IDLE 1
Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 3.9

Testing:
Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.50...5.70

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 900
Del.quantity cm³/ : 66.5...69.5
1000 s: (64.0...72.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.50
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 3
 Edition : 01.02.90
 Replaces : 18.08.89
 Test oil : ISO-4113

Combination no. : 0 403 446 235

Injection pump
 Pump designation : PES6MW100/320RS1171
 EP type number : 0 413 406 156
 Governor
 Governor design. : RQV300...1300MW80-5
 Governer no. : 0 420 083 197

Customer-spec. information
 Customer : RVI

Engine : MIDS 060212B

1st version kW : 113.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 033

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm³/

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.40...5.60

Del.quantity cm³/

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1500

travel mm : 8.70...9.10

2nd speed rpm : 1350

travel mm : 7.60...7.80

3rd speed rpm : 500

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 9.80

Speed rpm : 1370...1380
2nd rack travel in: 4.00
Speed rpm : 1485...1515
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 300
Rack travel in mm : 5.40...5.60

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.80...8.90

Measurement

Speed 1/min : 500

1st pressure hPa : 100
Rack travel in m: 9.30...9.40
2nd pressure hPa : 200
Rack travel in m: 10.20...10.50
3rd pressure hPa : 700
Rack travel in m: 10.80...10.90

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 900
Del.quantity cm3/ : 81.0...84.0
1000 s: (78.5...86.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 43.0...45.0
1000 s: (41.0...47.0)

BREAKAWAY

K20

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:
Set start-of-delivery sensor at pre-stroke to 3.50...3.60 mm for cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 83
 Edition : 16.02.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 446 246

Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1300MW50-6
 Governer no. : 0 420 083 209

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1430

travel mm : 9.30...9.70

2nd speed rpm : 1340

travel mm : 8.50...8.70

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 800

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:

1st rack travel in: 9.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack trave: 9.20
Speed rpm : 300
Rack travel in mm : 8.00...8.20

TORQUE CONTROL

Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.90...12.10
3rd speed rpm : 585
Rack travel in m: 12.20...12.30
4th speed rpm : 1100
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.50...10.60

Measurement

Speed 1/min : 500

1st pressure hPa : 180
Rack travel in m: 10.90...11.00
2nd pressure hPa : 290
Rack travel in m: 11.70...12.00
3rd pressure hPa : 800
Rack travel in m: 12.20...12.30

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 800
Del.quantity cm3/ : 77.0...80.0
1000 s: (74.5...82.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: 800
Speed rpm : 585
Del.quantity cm3/ : 71.0...74.0
1000 s: (68.5...76.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 39.0...41.0
1000 s: (37.0...43.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 V
 Edition : 16.02.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 446 247

Injection pump
 Pump designation : PES6MW100/720RS1195
 EP type number : 0 413 406 183
 Governor
 Governor design. : RQV300...1150MW107
 Governer no. : 0 420 083 208

Customer-spec. information
 Customer : KHD

Engine : BF 6L 913 C

1st version kW : 101.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.70...9.80

Del.quantity cm³/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.5...7.7

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 9.80...10.20

2nd speed rpm : 800

travel mm : 6.00...6.20

3rd speed rpm : 500

travel mm : 3.20...3.80

4th speed rpm : 300

travel mm : 2.20...2.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1000

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 8.70
Speed rpm : 1180...1190
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.6

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Dimension a mm : 0.75
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.70...9.80
2nd speed rpm : 800
Rack travel in m: 10.40...10.50
3rd speed rpm : 1030
Rack travel in m: 10.00...10.20

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.70...9.80

Measurement

Speed 1/min : 500

1st pressure hPa : 360
Rack travel in m: 9.90...10.00
2nd pressure hPa : 450
Rack travel in m: 10.10...10.30
3rd pressure hPa : 1000
Rack travel in m: 10.40...10.50

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 86.0...89.0
1000 s: (83.5...91.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 69.0...71.0
1000 s: (67.0...73.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1180...1190

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...130.0
1000 s: (107.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.50...7.70
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Test electrically-released starting quantity (EES) with 12 volts

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 84
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 446 248

Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1400MW48-12
 Governer no. : 0 420 083 212

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366C

1st version kW : 100.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm³/ : 5.9...6.1

100 s: (5.7...6.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1470

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 59.0...61.0

1000 : (57.0...63.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 8.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 8.00...8.20

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.90...10.00
2nd speed rpm : 800
Rack travel in m: 10.20...10.30
3rd speed rpm : 1050
Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 52.5...55.5
1000 s: (50.0...58.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 L 2
 Edition : 01.02.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 456 108

Injection pump
 Pump designation : PES6MW100/321RS1153
 EP type number : 0 413 406 145
 Governor
 Governor design. : RQV250...1100MW83-1
 Governer no. : 0 420 083 182

Cust. part no. : 3-7022

Customer-spec. information
 Customer : MAN

Engine : D 0826 L/204

1st version kW : 150.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 13.2...13.4

100 s: (13.0...13.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 4.8...5.0

Del.quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1210
	travel mm	: 11.10...11.50
2nd speed	rpm	: 1150
	travel mm	: 10.20...10.40
3rd speed	rpm	: 550
	travel mm	: 3.20...3.80
4th speed	rpm	: 250
	travel mm	: 1.10...1.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000

Del.quantity : 132.0...134.0

1000 : (130.0...136.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 54...62

Setting point:
Speed rpm : 1130
Rack travel in mm : 16.5

Testing:
1st rack travel in: 10.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.9

Testing:
Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 250
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 310...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 220
Rack travel mm : 9.10...9.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.80...8.90
2nd pressure hPa : 480
Rack travel in m: 10.70...11.00
3rd pressure hPa : 1000
Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 129.0...132.0
 1000 s: (126.5...134.5)
Spread cm³ : 5.00
 1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm³/ : 131.5...134.5
 1000 s: (129.0...137.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
 1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
 1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 19.0...23.0
 1000 s: (16.5...25.5)
Spread cm³ : 3.50
 1000 s: (5.50)

Remarks: : #MAN 3-7022
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C11
 Edition : 16.02.90
 Replaces : 05.01.90
 Test oil : ISO-4113

Combination no. : 0 403 466 110

Injection pump
 Pump designation : PES6MW100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV500...1250MW2A319
 -6
 Governor no. : 0 420 085 102

Cust. part no. : 3915688

Customer-spec. information
 Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 171.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 13.4...13.6
 100 s: (13.2...13.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 500.0
 Rack travel in mm : 6.5...6.7
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 134.0...136.0
 1000 : (132.0...138.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 11.80
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 6.00...6.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: #CDC 3915688
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C11
 Edition : 16.02.90
 Replaces : 05.01.90
 Test oil : ISO-4113

Combination no. : 0 403 466 110

Injection pump
 Pump designation : PES6MW100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV500...1250MW2A319
 -6
 Governer no. : 0 420 085 102

Cust. part no. : 3915688

Customer-spec. information
 Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 171.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 13.4...13.6

100 s: (13.2...13.8)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 500.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 134.0...136.0

1000 : (132.0...138.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 11.80
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 6.00...6.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: #CDC 3915688
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C12
 Edition : 02.02.90
 Replaces : 06.10.89
 Test oil : ISO-4113

Combination no. : 0 403 466 122

Injection pump
 Pump designation : PES6MW100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV400...1250MW2A319
 -15
 Governer no. : 0 420 085 123

Cust. part no. : 3917598

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA

1st version kW : 204.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.90...14.00

Del.quantity cm³/ : 15.9...16.1

100 s: (15.7...16.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.6...6.8

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 159.5...161.5

1000 : (157.5...163.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Setting point:
Speed rpm : 800
Rack travel in mm : 0.8

Testing:
1st rack travel in: 12.90
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1365...1395
3rd rack travel in: 4.00
Speed rpm : 1385...1415
4th rack travel in: 1500
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.2

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 6.10...6.30

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 149.5...152.5
1000 s: (147.0...155.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.60...6.80

Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: #CDC 3917598
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 Q
 Edition : 16.02.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 466 123
 Injection pump
 Pump designation : PES6MW100/120RS1137-
 2
 EP type number : 0 413 406 180
 Governor
 Governor design. : RSV500...1250MW2A319
 -16
 Governer no. : 0 420 085 130
 Customer-spec. information
 Customer : CUMMINS
 Engine : 6 CTA-8.3 L
 1st version kW : 171.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 1250
Rack travel in mm : 12.80...12.90		
Del.quantity cm ³ /	: 13.4...13.6	
	100 s:	(13.2...13.8)
Spread	cm ³	: 0.3
	100 s:	(0.6)
2nd speed	rpm	: 500.0
Rack travel in mm	: 6.5...6.7	
Del.quantity cm ³ /	: 1.6...2.0	
	100 s:	(1.3...2.2)
Spread	cm ³	: 0.3
	100 s:	(0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version		
Speed	rpm	: 1250
Del.quantity	: 134.0...136.0	
	1000	: (132.0...138.0)
Spread	cm ³	: 3.50
	1000	: (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Remarks:
: #CDC 3918357

Testing:
1st rack travel in: 11.80
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1550
Speed rpm : 0.30...1.70

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 6.00...6.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 I 2
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 466 124
 Injection pump
 Pump designation : PES6MW100/120RS1178
 EP type number : 0 413 406 160
 Governor
 Governor design. : RSV425...1250MW2A332
 -2
 Governer no. : 0 420 085 131
 Customer-spec. information
 Customer : CUMMINS
 Engine : 6 CT
 1st version kW : 174.0
 Rated speed : 2500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 017
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.80...13.90

Del.quantity cm³/

100 s: (14.0...14.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/

100 s: (0.8...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h:

Del.quantity : 142.0...144.0

1000 : (140.0...146.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 12.80
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1090...1120
3rd rack travel in: 4.00
Speed rpm : 1100...1130
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 525...585

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.80...11.00

Measurement
Speed 1/min : 500

1st pressure hPa : 305
Rack travel in m: 11.60...11.70
2nd pressure hPa : 465
Rack travel in m: 12.80...13.10
3rd pressure hPa : 900
Rack travel in m: 13.80...13.90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 92.5...94.5
1000 s: (90.5...96.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (155.0...185.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : #CDC 3913758

Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 H
 Edition : 02.02.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 474 009
 Injection pump
 Pump designation : PES4MW100/720RS1187
 EP type number : 0 413 404 108
 Governor
 Governor design. : RSV300...1250MW5A337
 Governer no. : 0 420 085 128
 Customer-spec. information
 Customer : KHD
 Engine : BF 4L 913C
 1st version kW : 92.0
 Rated speed : 2500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.90...13.00

Del.quantity cm³ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm³ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.20

FULL LOAD DELIV. AT FULL LOAD STOP**1st version**

Speed rpm : 1250

Aneroid pressure h: 1000

Del.quantity : 118.0...120.0

1000 : (116.0...122.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED**1st version**

Control lever

position degrees: 56...64

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:
1st rack travel in: 11.90
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.6
Speed rpm : 300
Rack travel in mm : 7.50...7.70

SET IDLE AUXILIARY SPRING
Speed rpm : 300
Rack travel in mm : 8.00...8.20

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.90...13.00
2nd speed rpm : 800
Rack travel in m: 13.20...13.30
3rd speed rpm : 900
Rack travel in m: 13.10...13.30
4th speed rpm : 1000
Rack travel in m: 12.90...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.80...10.90

Measurement
Speed 1/min : 500

1st pressure hPa : 320
Rack travel in m: 11.40...11.50
2nd pressure hPa : 470
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1000
Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 800

Del.quantity cm³/ : 113.5...116.5
1000 s: (111.0...119.0)
Spread cm³ : 3.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 66.0...68.0
1000 s: (64.0...70.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 H 1
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 474 011
 Injection pump
 Pump designation : PES4MW100/720RS1187
 EP type number : 0 413 404 108
 Governor
 Governor design. : RSV300...1250MW5A337
 Governor no. : 0 420 085 137
 Customer-spec. information
 Customer : KHD
 Engine : BF 4L 913C
 1st version kW : 92.0
 Rated speed : 2500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.95...4.05
 : (3.90...4.10)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2
 Phasing : 0-90-180-270
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 1250
 Rack travel in mm : 12.90...13.00
 Del.quantity cm³/ : 11.8...12.0
 : 100 s: (11.6...12.2)
 Spread cm³ : 0.3
 : 100 s: (0.6)
 2nd speed rpm : 300.0
 Rack travel in mm : 8.0...8.2
 Del.quantity cm³/ : 1.2...1.6
 : 100 s: (0.9...1.8)
 Spread cm³ : 0.3
 : 100 s: (0.5)
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00
 Governor spring pre-tension
 Click setting x : 4.20
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 1250
 Aneroid pressure h: 1000
 Del.quantity : 118.0...120.0
 : 1000 : (116.0...122.0)
 Spread cm³ : 3.50
 : 1000 : (6.00)
RATED SPEED
 1st version
 Control lever
 position degrees: 56...64
 Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:
1st rack travel in: 11.90
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.6
Speed rpm : 300
Rack travel in mm : 7.50...7.70

SET IDLE AUXILIARY SPRING
Speed rpm : 300
Rack travel in mm : 8.00...8.20

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.90...13.00
2nd speed rpm : 800
Rack travel in m: 13.20...13.30
3rd speed rpm : 900
Rack travel in m: 13.10...13.30
4th speed rpm : 1000
Rack travel in m: 12.90...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.80...10.90

Measurement
Speed 1/min : 500

1st pressure hPa : 320
Rack travel in m: 11.40...11.50
2nd pressure hPa : 470
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1000
Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 800

Del.quantity cm³/ : 113.5...116.5
1000 s: (111.0...119.0)
Spread cm³ : 3.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 66.0...68.0
1000 s: (64.0...70.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

Test electrically-released starting
quantity (EES) with 12 volts

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 r
 Edition : 29.01.1990
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 403 476 003

 Injection pump
 Pump designation : PES6MW100/320LS1001
 Governor
 Governor design. : RSV375...1100MW2/304

 Customer-spec. information
 Customer : CASE

 Engine : A 501 BDTI

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 000

 Inlet press., bar : 1.0

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test Lines : 9 681 230 706

 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.95...3.05
 : (-)
 Rack travel in mm : 10.5
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

 Rack travel in mm : 14.1

 Del.quantity cm³/ : 15.5...15.7
 100 s: (-)

 Spread cm³ : 0.3
 100 s: (-)

 2nd speed rpm : 375
 Rack travel in mm : 6.0
 Del.quantity cm³/ : 1.6...2.2
 100 s: (-)
 Spread cm³ : 0.3
 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 155.0...157.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 43...47

Testing:

1st rack travel in: 13.1
 Speed rpm : 1140...1150
 2nd rack travel in: 4.0
 Speed rpm : 1215...1245
 3rd rack travel in: 0.3...1.7
 Speed rpm : 1300

LOW IDLE 1

Control lever
 position degrees: 22...25
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 5.5

Speed rpm : 375
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 480...540

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.1
2nd speed rpm : 700
Rack travel in m: 14.2...14.6
3rd speed rpm : 600
Rack travel in m: 14.3...14.5

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 157.0...163.0
1000 s: (-)
Speed rpm : 600
Del.quantity cm³/ : < 161.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.1
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm³/ : 16.0...22.0
1000 s: (-)

Remarks:
: CASE # A-150238

Start-of-delivery mark is at start of
delivery of cylinder 1

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 6,1 N 1
 Edition : 01.02.90
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 403 476 044

 Injection pump
 Pump designation : PES6MW100/320RS1132
 EP type number : 0 413 406 124
 Governor
 Governor design. : RSV650...750MW4A311-1
 Governor no. : 0 420 085 134

 Customer-spec. information
 Customer : VOLVO-PENTA

 Engine : TD 61 AG

 1st version kW : 83.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 457 413 010

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test Lines : 1 680 750 014

 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 2.90...3.00
 : (2.85...3.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - " : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

 Rack travel in mm : 11.30...11.40

 Del.quantity cm³/ 100 s: 8.2...8.4
 : (8.0...8.6)

Spread cm³ : 0.3
 : 100 s: (0.6)

2nd speed rpm : 650.0
 Rack travel in mm : 6.3...6.4
 Del.quantity cm³/ 100 s: 1.7...2.1
 : (1.5...2.2)

Spread cm³ : 0.3
 : 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity 1000 : 82.0...84.0
 : (80.0...86.0)
 Spread cm³ : 3.50
 : 1000 : (6.00)

RATED SPEED

1st version
 Control lever position degrees: 33...41

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.30
 Speed rpm : 750...760
 2nd rack travel in: 4.00
 Speed rpm : 765...795

4th rack travel in: 950
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 5.8

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 650
Rack travel in mm : 5.80...5.90

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 750...760

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (137.0...163.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.30...6.40
Del.quantity cm³/ : 17.0...21.0
1000 s: (15.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 6,1 N 2
 Edition : 01.02.90
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 403 476 045

 Injection pump :
 Pump designation : PES6MW100/320RS1132
 EP type number : 0 413 406 124
 Governor :
 Governor design. : RSV650...750MW4A311-
 2
 Governer no. : 0 420 085 135

 Customer-spec. information
 Customer : VOLVO-PENTA

 Engine : TID 61 AG

 1st version kW : 102.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

 Overflow valve : 1 457 413 010

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 014

 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

 Prestroke mm : 2.90...3.00
 : (2.85...3.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

 Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 11.3...11.5
 100 s: (11.1...11.7)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 650.0
 Rack travel in mm : 6.2...6.3
 Del.quantity cm³/ : 1.7...2.1
 100 s: (1.5...2.2)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 113.0...115.0
 1000 : (111.0...117.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 34...42

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.80
 Speed rpm : 750...760
 2nd rack travel in: 4.00
 Speed rpm : 780...810

4th rack travel in: 950
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 5.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 650
Rack travel in mm : 5.70...5.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 750...760

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (137.0...163.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.20...6.30
Del.quantity cm³/ : 17.0...21.0
1000 s: (15.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 H 1
 Edition : 02.02.90
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 403 476 080

 Injection pump
 Pump designation : PES6MW100/720RS1191
 EP type number : 0 413 406 179
 Governor
 Governor design. : RSV350...1300MWOA329
 Governor no. : 0 420 085 136

 Customer-spec. information
 Customer : MB-NFZ

 Engine : OM 366 LA

 1st version kW : 170.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 047

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 015

 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

 Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

 Phasing : 0-60-120-180-240-300

 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

 1st speed rpm : 1280

 Rack travel in mm : 14.00...14.10

 Del.quantity cm³/ : 11.2...11.4
 100 s: (11.0...11.6)

 Spread cm³ : 0.3
 100 s: (0.6)

 2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 0.9...1.3
 100 s: (0.6...1.5)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

 Governor spring pre-tension
 Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

 1st version
 Speed rpm : 1280
 Aneroid pressure h: 1000
 Del.quantity : 112.0...114.0
 1000 : (110.0...116.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

 1st version
 Control lever
 position degrees: 55...63

 Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

 Testing:

1st rack travel in: 13.00
Speed rpm : 1330...1340
2nd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.10...10.20

Measurement
Speed 1/min : 500

1st pressure hPa : 350
Rack travel in m: 11.30...11.40
2nd pressure hPa : 500
Rack travel in m: 12.80...13.10
3rd pressure hPa : 1000
Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 99.5...102.5
1000 s: (97.0...105.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:
:
Test hydr. locking device for starting
with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4 F3
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 548 035

Injection pump
 Pump designation : PE8MW100/720LS1173
 EP type number : 0 413 508 108
 Governor
 Governor design. : RQ300/1000MW104-1
 Governer no. : 0 420 082 041

Customer-spec. information
 Customer : KHD

Engine : F8L513

1st version kW : 150.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.00...10.10

Del.quantity cm³/ 100 s : 9.0...9.2
 100 s: (8.8...9.4)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 4.9...5.1
 Del.quantity cm³/ 100 s: (0.8...1.7)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1100
 travel mm : 8.80...9.20
 2nd speed rpm : 1060
 travel mm : 6.90...7.10
 3rd speed rpm : 450
 travel mm : 4.20...4.80
 4th speed rpm : 300
 travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del.quantity 1000 : 90.0...92.0
 : (88.0...94.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 26...34

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.00
Speed rpm : 1040...1055
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 10.00...10.10
2nd speed rpm : 700
Rack travel in m: 11.20...11.30
3rd speed rpm : 900
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ 1000 s: 102.5...105.5
1000 s: (100.0...108.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.00

Speed rpm : 1040...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ 1000 s: 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Set warm starting fuel delivery
110 cm³ /1000 strokes at n = 100
min -1 at spool

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4017
 Edition : 12.02.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 548 036

Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQV425...900MW76-1
 Governer no. : 0 420 083 210

Customer-spec. information

Customer : KHD
 Engine : BF 8L 513

1st version kW : 160.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 10.3...10.5
 100 s: (10.1...10.7)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 4.9...5.1
 Del.quantity cm³/ : 1.3...1.7
 100 s: (1.0...1.9)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	:	1000
travel mm		:	9.50...10.10
2nd speed	rpm	:	950
travel mm		:	8.70...8.90
3rd speed	rpm	:	600
travel mm		:	3.90...4.50
4th speed	rpm	:	425
travel mm		:	1.60...2.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 925
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 875
 Del.quantity : 103.0...105.0
 1000 : (101.0...107.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 9.50
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 955...985
4th rack travel in: 1050
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack trav: 6.50
Speed rpm : 425
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION
Speed rpm : 430...490

TORQUE CONTROL
Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 10.50...10.60
2nd speed rpm : 600
Rack travel in m: 11.10...11.20
3rd speed rpm : 750
Rack travel in m: 10.80...11.00

START CUT-OUT

Speed 1/min : 350 (370)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 108.5...111.5
1000 s: (106.0...114.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h12
 Edition : 01.02.90
 Replaces : 14.1.88
 Test oil : ISO-4113
 Combination no. : 9 400 230 069
 Injection pump
 Pump designation : PES6A100D410RS2676-1
 EP type number : 9 410 230 024
 Governor
 Governor design. : RSV450...1000A1C2186
 -1L
 Governer no. : 9 420 234 149
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6466A
 1st version kW : 140.0
 Rated speed : 2000
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 27...29
 Prestroke mm : 2.45...2.55
 : (2.40...2.60)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 1000
 Rack travel in mm : 11.60...11.70
 Del.quantity cm3/ : 12.1...12.3
 : 100 s: (11.9...12.5)
 Spread cm3 : 0.4
 : 100 s: (0.6)
 2nd speed rpm : 450.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm3/ : 1.8...2.2
 : 100 s: (1.5...2.4)
 Spread cm3 : 0.6
 : 100 s: (0.8)
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70
 Governor spring pre-tension
 Click setting x : ?
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 1000
 Del.quantity : 121.5...123.5
 : 1000 : (119.5...125.0)
 Spread cm3 : 4.00
 : 1000 : (6.50)
RATED SPEED
 1st version
 Control lever
 position degrees: 47...55
 Testing:
 1st rack travel in: 10.60
 Speed rpm : 1045...1055
 2nd rack travel in: 4.00

Speed rpm : 1070...1100
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.60...11.60
2nd speed rpm : 700
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 132.0...135.0
1000 s: (129.5...137.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.60
Speed rpm : 1045...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...210.0
1000 s: (185.0...215.0)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version
Speed rpm : 1075
Rack travel in mm : 5.90...6.10

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.80...6.00

Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE28030
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1 with control-rod
travel = 10.50 mm.

Starting/full-load transition speed
from holding magnet = 450 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a76
 Edition : 01.02.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 230 089CW

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -3R
 Governer no. : 9 420 234 125

Cust. part no. : 3915294

Customer-spec. information
 Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 164.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 11.3...11.5
 100 s: (11.1...11.7)

Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 113.0...115.0
 1000 : (111.0...117.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:

1st rack travel in: 10.50
Speed rpm : 1140...1150
3rd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 j 1
 Edition : 28.09.89
 Replaces : 15.6.88
 Test oil : ISO-4113

Combination no. : 9 400 230 096DA

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV425...900A4C2213

Cust. part no. : 3908845

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT-I

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 017

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.00...14.10

Del.quantity cm³/

100 s: (14.0...14.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 142.5...144.5

1000 : (140.5...146.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 13.00

Speed rpm : 795...805

2nd rack travel in: 4.00

Speed rpm : 825...855
3rd rack travel in: 4.00
Speed rpm : 830...860

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 440...500

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 795...805

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.
Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a12
 Edition : 01.02.90
 Replaces : 7.4.89
 Test oil : ISO-4113

Combination no. : 9 400 230 097

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -8R
 Governer no. : 9 420 234 137

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 156.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 12.2...12.4

100 s: (12.0...12.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 122.5...124.5

1000 : (120.5...126.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1185...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3911952

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a13
 Edition : 01.02.90
 Replaces : 7.4.89
 Test oil : ISO-4113

Combination no. : 9 400 230 099

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050A0C2190
 -10R
 Governer no. : 9 420 234 142

Customer-spec. information
 Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 89.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 017

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.60...9.70

Del.quantity cm³/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)

Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
 Del.quantity : 82.0...84.0

1000 : (80.0...86.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:

1st rack travel in: 8.60
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 9.60...9.70
2nd speed rpm : 750
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 86.5...90.5
1000 s: (84.5...92.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.60
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915964

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

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BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a48
 Edition : 02.05.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 099AA
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 Cust. part no. : 3911948
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 C 8.3
 1st version kw : 111.9
 Rated speed : 2200
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 017
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 1000
 Rack travel in mm : 11.30...11.40
 Del.quantity cm³/ : 10.5...10.7
 : 100 s: (10.3...10.9)
 Spread cm³ : 0.3
 : 100 s: (0.6)
 2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 1.6...2.0
 : 100 s: (1.3...2.2)
 Spread cm³ : 0.3
 : 100 s: (0.5)
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70
 Governor spring pre-tension
 Click setting x : ?
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 1000
 Del.quantity : 105.5...107.5
 : 1000 : (103.5...109.5)
 Spread cm³ : 3.50
 : 1000 : (6.00)
RATED SPEED
 1st version
 Control lever position degrees: 42...50
 Testing:

1st rack travel in: 10.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
3rd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 475...535

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 k
 Edition : 01.02.90
 Replaces : 15.6.88
 Test oil : ISO-4113

Combination no. : 9 400 230 102

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050A0C2216.
 R
 Governer no. : 9 420 234 146

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3

1st version kW : 141.7
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 100.5...102.5

1000 : (98.5...104.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 10.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 25...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 126.0...130.0
1000 s: (124.0...132.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3911963

Adjust stop lever to 0.5...1.0 mm before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 a12
 Edition : 26.01.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 231 042
 Injection pump
 Pump designation : PES6P110A720RS361
 Governor
 Governor design. : RSV450...1100P2/467
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6466 AT

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 010
 Inlet press., bar : 1.5
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.5
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.9

Del.quantity cm³/ 100 s: (-)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 450

Rack travel in mm : 5.5

Del.quantity cm³/ 100 s: (-)

Spread cm³ : 0.6

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 670

Del.quantity 1000 : 137.0...139.0
 : (134.0...142.0)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9.9
 Speed rpm : 1095...1105

2nd rack travel in: 4.0

Speed rpm : 1200...1230

3rd rack travel in: 0.3...1.7
 Speed rpm : 1300

LOW IDLE 1

Control lever
 position degrees: 18...26

Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.0
Speed rpm : 450
Rack travel in mm : 5.5
Rack travel in mm : 2.0
Speed rpm : 635...695
Speed rpm : 850
Maximum rack trave: 1.0

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 10.85...10.95
2nd speed rpm : 900
Rack travel in m: 11.10...11.20
3rd speed rpm : 850
Rack travel in m: 10.85...11.15
4th speed rpm : 650
Rack travel in m: 11.55...11.65
5th speed rpm : 550
Rack travel in m: 8.85...8.95

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 410
Rack travel mm : 10.85...10.95

Measurement
Speed 1/min : 500
1st pressure hPa : 180
Rack travel in m: 9.40...9.80

START CUT-OUT

Speed 1/min : 400...700

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 670
Speed rpm : 650
Del.quantity cm³/ : 150.5...153.5
1000 s: (147.0...157.0)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm³/ : 86.0...94.0
1000 s: (85.0...95.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.9
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 15.0...17.0
1000 s: (-)
Rack travel in mm : 21.0

HIGH IDLE

1st version
Speed rpm : 1150
Del.quantity cm³/ : 60.0...70.0
1000 s: (58.5...71.5)

LOW IDLE

Speed rpm : 450
Del.quantity cm³/ : 9.0...15.0
1000 s: (7.0...17.0)

Remarks:

: JOHN DEERE # AR91127
Start-of-delivery mark = 13.25° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7.6 a 5
 Edition : 25.01.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 231 076
 Injection pump
 Pump designation : PES6P110A720RS361
 Governor
 Governor design. : RSV600...1100P2/480
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.5
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 9 681 230 705
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.5
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.0

Del.quantity cm³/ : 16.2...16.4

100 s: (-)

Spread cm³ : 0.4

100 s: (-)

2nd speed rpm : 600

Rack travel in mm : 5.6

Del.quantity cm³/ : 2.2...2.8

100 s: (-)

Spread cm³ : 0.4

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 162.5...164.5

1000 : (159.5...167.5)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.0

Speed rpm : 1145...1155

2nd rack travel in: 4.0

Speed rpm : 1225...1255

3rd rack travel in: 0.3...1.7

Speed rpm : 1350

LOW IDLE 1

Control lever

position degrees: 21...29

Setting point w/out bumper spring

Speed rpm : 600

Rack travel in mm : 5.1

Testing:

Speed rpm : 100

Minimum rack trave: 19.00
Speed rpm : 600
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 730...760

Acceleration from start to full load
with n = 400...750 min. -1

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.95...12.05
2nd speed rpm : 950
Rack travel in m: 11.95...12.25
3rd speed rpm : 850
Rack travel in m: 12.25...12.35

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 850
Del.quantity cm³/ 1000 s: 169.0...173.0
(166.0...176.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.0
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 15.5...17.5
(-)
Rack travel in mm : 21.0

HIGH IDLE

1st version
Speed rpm : 1200
Del.quantity cm³/ 1000 s: 55.0...65.0
(-)

LOW IDLE

Speed rpm : 600
Del.quantity cm³/ 1000 s: 22.0...28.0
(-)

Remarks:
: JOHN DEERE # AR96258

Start-of-delivery mark = 13.25° after
start of delivery cyl. 1.

Magnet.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 g 7
 Edition : 25.01.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 231 176
 Injection pump
 Pump designation : PES6P110A720RS3083
 Governor
 Governor design. : RSV400...1050P2/488-2
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6466 A
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.5
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 10.5
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : 1050
 Rack travel in mm : 12.5
 Del.quantity cm³/ : 14.65...14.95
 100 s: (-)
 Spread cm³ : 0.4
 100 s: (0.75)
 2nd speed rpm : 400
 Rack travel in mm : 7.0
 Del.quantity cm³/ : 1.35...1.85
 100 s: (-)
 Spread cm³ : 0.45
 100 s: (0.75)
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40
 Governor spring pre-tension
 Click setting x : ?
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 1050
 Aneroid pressure h: 1200
 Del.quantity : 146.5...146.5
 1000 : (144.0...152.0)
RATED SPEED
 1st version
 Control lever
 position degrees: 42...50
Testing:
 1st rack travel in: 11.5
 Speed rpm : 1090...1100
 2nd rack travel in: 4.0
 Speed rpm : 1175...1205
 3rd rack travel in: 4.0
 Speed rpm : 1185...1215
 4th rack travel in: 1300
 Speed rpm : 0.3...1.7
LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 660...720

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.5
2nd speed rpm : 700
Rack travel in m: 13.7...13.9

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 413
Rack travel mm : 13.05...13.15

Measurement
Speed 1/min : 500

1st pressure hPa : 147
Rack travel in m: 11.1...11.5
2nd pressure hPa : -
Rack travel in m: 10.4

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm3/ : 179.0...183.0
1000 s: (176.0...186.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 91.0...95.0
1000 s: (88.0...98.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.5
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0...190.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1150
Del.quantity cm3/ : 47.0...57.0
1000 s: (45.5...58.5)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 13.5...18.5
1000 s: (11.0...21.0)

Remarks:
Start-of-delivery mark = 12,75° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 k 2
 Edition : 15.12.89
 Replaces : 12.9.86
 Test oil : ISO-4113

 Combination no. : 0 400 646 268

 Injection pump
 Pump designation : PE6A95D410RS2525
 EP type number : 0 410 696 987
 Governor
 Governor design. : RQ225/1200AB1156L
 Governer no. : 0 420 200 079

 Customer-spec. information
 Customer : DAF

 Engine : DH 825

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 000

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test Lines : 1 680 750 015

 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

 Tolerance + - ° : 0.50 (0.75)

 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1200

 Rack travel in mm : 10.40...10.50

 Del.quantity cm³/ : 7.3...7.5
 100 s: (7.1...7.7)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 225.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 0.7...1.1
 100 s: (0.4...1.3)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2

Speed rpm : 650
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 73.0...75.0
 1000 : (71.0...77.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 650
 Rack travel in mm : 20.0

Testing:
 1st. rack travel in: 9.40
 Speed rpm : 1245...1260

2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 225
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 345...385
Speed rpm : 490
Maximum rack trave: 1.00

TORQUE CONTROL
Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.40...10.50
2nd speed rpm : 650
Rack travel in m: 11.70...11.80
4th speed rpm : 1035
Rack travel in m: 10.90...11.10
5th speed rpm : 1100
Rack travel in m: 10.50...10.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.40
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.50...21.00

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 i 1
 Edition : 22.3.90
 Replaces : 11.12.87
 Test oil : ISO-4113

Combination no. : 0 400 646 271

Injection pump
 Pump designation : PE6A95D410LS2621
 EP type number : 0 410 696 982
 Governor
 Governor design. : RQV300...1250AB1195L
 Governer no. : 0 420 212 172

Customer-spec. information

Customer : KHD

Engine : F6L413F

1st version kW : 141.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm³ : 0.35

100 s: (0.6)

2nd speed rpm : 300

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 0.8...1.4

100 s: (0.55...1.65)

Spread cm³ : 0.35

100 s: (0.55)

100 s: 7.70..

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.30

2nd speed rpm : 500

travel mm : 2.60...2.90

3rd speed rpm : 1000

travel mm : 5.40...5.60

4th speed rpm : 1300

travel mm : 7.70...7.80

5th speed rpm : 1380

travel mm : 8.50...8.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1250

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 96.5...98.5

1000 : (94.5...100.5)

Spread cm³ : 3.5

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 9.40
Speed rpm : 1290...1300
2nd rack travel in: 4.50
Speed rpm : 1365...1395
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 14...22

Testing:

Speed rpm : 100
Minimum rack trav: 8.00
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 375...485

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.40...10.50
2nd speed rpm : 500
Rack travel in m: 10.90...11.00
3rd speed rpm : 850
Rack travel in m: 10.70...10.90
4th speed rpm : 950
Rack travel in m: 10.50...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 95.0...98.0
1000 s: (92.5...100.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.40...14.80

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 i 2
 Edition : 05.03.90
 Replaces : 26.8.88
 Test oil : ISO-4113

Combination no. : 0 400 646 275

Injection pump
 Pump designation : PE6A95D410LS2621
 EP type number : 0 410 696 982
 Governor
 Governor design. : RQ300/1250AB1148-1L
 Governer no. : 0 420 200 104

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 141.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.60...10.70

Del.quantity cm³/

100 s: (9.4...10.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 0.8...1.4

100 s: (0.5...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 16.80...18.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 96.5...98.5

1000 : (94.5...100.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 17.6

Testing:

1st rack travel in: 9.60

Speed rpm : 1295...1310

2nd rack travel in: 4.00

Speed rpm : 1325...1355

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 7.90
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.17
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.60...10.70
2nd speed rpm : 600
Rack travel in m: 11.10...11.20
3rd speed rpm : 915
Rack travel in m: 11.10...11.20
4th speed rpm : 980
Rack travel in m: 10.60...10.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 95.0...98.0
1000 s: (92.5...100.5)

RACK STOP ADJUSTMENT

Speed rpm : 650

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 15.30...15.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAO 14,6 a
 Edition : 07.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 648 146

Injection pump
 Pump designation : PE8A95D320LS2672
 EP type number : 0 410 698 985
 Governor
 Governor design. : RQ250/1150AB1191-1R
 Governer no. : 0 420 201 646

Customer-spec. information

Engine : D2848 M

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 10.4...11.1

100 s: (10.7...11.3)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 250.0

Rack travel in mm : 8.1...8.3

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.20...13.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 109.0...111.0

1000 : (107.0...113.0)

Spread cm3 : 3.50

1000 : (4.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.90

Speed rpm : 1195...1210

2nd rack travel in: 4.00

Speed rpm : 1245...1275

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 7.4

Testing:

Speed rpm : 100
Minimum rack trave: 8.90
Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 385...425

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.90...13.00
2nd speed rpm : 600
Rack travel in m: 12.90...13.10

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 170.0...180.0
1000 s: (167.0...183.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 L
 Edition : 15.03.90
 Replaces : 7.4.89
 Test oil : ISO-4113

Combination no. : 0 400 649 196

Injection pump
 Pump designation : PE10A95D610/4LS2452
 EP type number : 0 410 699 998
 Governor
 Governor design. : RQV750AB996L
 Governer no. : 0 420 212 091

Customer-spec. information
 Customer : KHD

Engine : F10L413F

1st version kW : 162.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-10- 9- 4- 3- 6-
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 710

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 9.7...9.9

100 s: (9.5...10.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 0.6...1.6

100 s: (0.3...1.8)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 755

travel mm : 5.20...5.40

2nd speed rpm : 785

travel mm : 7.40...7.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 710

Del.quantity : 97.0...99.0

1000 : (95.0...101.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 9.60

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 772...787

START CUT-OUT

Speed 1/min : 660 (680)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

Remarks:

:

APPLICATION

Compressor

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 d2
 Edition : 12.09.86
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 649 243
 Injection pump
 Pump designation : PE10A95D610/4LS2452
 EP type number : 0 410 699 998
 Governor
 Governor design. : RQV300...1250AB1223-
 1L
 Governer no. : 0 420 212 194
 Customer-spec. information
 Customer : KHD
 Engine : F10L413F
 1st version kW : 235.0
 Rated speed : 2500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.00
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1-10-9-4- 3- 6-
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 200
travel mm		: 0.70...0.80
2nd speed	rpm	: 500
travel mm		: 2.60...2.80
3rd speed	rpm	: 900
travel mm		: 5.60...5.80
4th speed	rpm	: 1300
travel mm		: 8.60...8.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1250
Del.quantity		: 94.0...96.0
1000		: (92.0...98.0)
Spread	cm ³	: 3.50
1000		: (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.40

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1360...1390

3rd rack travel in: 0.00...1.00

Speed rpm : 1500

LOW IDLE 1

Control lever

position degrees: 14...18

Testing:

Speed rpm : 100

Minimum rack trav: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 375...485

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.40...10.50

2nd speed rpm : 500

Rack travel in m: 10.90...11.00

3rd speed rpm : 790

Rack travel in m: 10.70...10.90

4th speed rpm : 885

Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm³/ : 93.5...96.5

1000 s: (91.0...99.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 13.50...14.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 d3
 Edition : 14.04.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 649 245
 Injection pump
 Pump designation : PE10A95D610/4LS2452
 EP type number : 0 410 699 998
 Governor
 Governor design. : RQV300...1250AB1055-
 2L
 Governer no. : 0 420 212 216
 Customer-spec. information
 Customer : KHD
 Engine : F10L413F
 1st version kw : 206.0
 TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.00
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
 BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1-10- 9- 4- 3- 6-
 5- 8- 7- 2
 Phasing : 0-27-72-99-144-171-
 216-243-288-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
 BASIC SETTING
 1st speed rpm : 1250
 Rack travel in mm : 9.60...9.70
 Del.quantity cm³/ : 8.5...8.7
 100 s: (8.3...8.9)
 Spread cm³ : 0.3
 100 s: (0.6)
 2nd speed rpm : 300.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.8)
 Spread cm³ : 0.5
 100 s: (0.7)
 (B) Setting of injection pump
 with governor
 GUIDE SLEEVE TRAVEL
 1st speed rpm : 300
 travel mm : 1.40...1.50
 2nd speed rpm : 410
 travel mm : 2.50...2.70
 3rd speed rpm : 460
 travel mm : 3.00...3.20
 4th speed rpm : 1305
 travel mm : 8.60...8.80
 5th speed rpm : 1375
 travel mm : 9.60...9.80
 GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1255
 Rack travel in mm : 15.20...17.80
 FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 1250
 Del.quantity : 85.0...87.0
 1000 : (83.0...89.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 8.60
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1355...1385
4th rack travel in: 1475
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24

Testing:
Speed rpm : 100
Minimum rack trav: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 408...458

TORQUE CONTROL
Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.60...9.70
2nd speed rpm : 750
Rack travel in m: 10.60...10.70
3rd speed rpm : 945
Rack travel in m: 10.30...10.50
4th speed rpm : 1110
Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 93.5...96.5
1000 s: (91.0...99.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.60
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 13.50...14.20

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 6,5 a
 Edition : 07.02.89
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 400 656 148

 Injection pump
 Pump designation : PE6A90D321RS2413
 EP type number : 0 410 696 170
 Governor
 Governor design. : RQ250/1300AB863DR
 Governer no. : 0 420 203 098

 Customer-spec. information
 Customer : ENASA

 Engine : 9130.00

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 000

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test Lines : 1 680 750 014

 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

 Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 1280
Rack travel in mm		: 10.20...10.30
Del.quantity cm ³ /		: 7.5...7.6
	100 s:	(7.3...7.8)
Spread	cm ³	: 0.3
	100 s:	(0.5)
2nd speed	rpm	: 250.0
Rack travel in mm		: 7.9...8.1
Del.quantity cm ³ /		: 1.2...1.8
	100 s:	(1.0...2.0)
Spread	cm ³	: 0.2
	100 s:	(0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1280
 Del.quantity : 75.0...76.0
 1000 : (73.0...78.0)
 Spread cm³ : 3.00
 1000 : (5.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 550
 Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.20
 Speed rpm : 1325...1340
 2nd rack travel in: 4.00
 Speed rpm : 1360...1390

LOW IDLE 1

Setting point w/out bumper spring
 Speed rpm : 250

Rack travel in mm : 6.0

Testing:

Speed rpm : 150
Minimum rack trave: 7.00
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1280
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.60...10.70
3rd speed rpm : 700
Rack travel in m: 10.50...10.60
4th speed rpm : 760
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 64.0...66.0
1000 s: (61.5...68.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1325...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...100.0
1000 s: (87.0...103.0)
Rack travel in mm : 14.80...15.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 6,5 c
 Edition : 27.10.89
 Replaces : 21.4.89
 Test oil : ISO-4113

Combination no. : 0 400 656 161

Injection pump
 Pump designation : PE6A90D321RS2690
 EP type number : 0 410 696 182
 Governor
 Governor design. : RQV250...1300AB1238R
 Governer no. : 0 420 213 109

Customer-spec. information
 Customer : ENASA

Engine : 94T 3AW 31500

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 9.2...9.3

100 s: (9.0...9.5)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 250.0

Rack travel in mm : 8.1...8.3

Del.quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.2

100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.20

2nd speed rpm : 300
 travel mm : 2.30...2.70

3rd speed rpm : 1340
 travel mm : 8.60...8.80

4th speed rpm : 1465
 travel mm : 9.70...10.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1300
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 92.5...93.5
 1000 : (90.5...95.5)

Spread cm³ : 3.00

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 11.20
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 11...19

Testing:

Speed rpm : 100
Minimum rack trave: 9.60
Speed rpm : 250
Rack travel in mm : 8.10...8.30

CONSTANT REGULATION

Speed rpm : 285...390

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.20...12.30
2nd speed rpm : 500
Rack travel in m: 12.60...12.80
3rd speed rpm : 900
Rack travel in m: 12.30...12.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 12.30...12.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.60
2nd pressure hPa : 490
Rack travel in m: 12.00...12.10
3rd pressure hPa : 400
Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 900
Del.quantity cm³/ 1000 s: 94.0...98.0
(91.5...100.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 56.0...57.0
(54.0...59.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 160.0...170.0
(157.0...173.0)
Rack travel in mm : 19.50...21.00

Remarks:

:
Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HAN 7,2 b 3
 Edition : 24.11.89
 Replaces : 24.5.89
 Test oil : ISO-4113

Combination no. : 0 400 674 047

Injection pump
 Pump designation : PE4A95D420RS2662-1
 EP type number : 0 410 694 994
 Governor
 Governor design. : RSV350...1100A8C2222
 -1R
 Governer no. : 0 420 233 251

Customer-spec. information
 Customer : HANOMAG

Engine : D944T-50E

1st version kW : 105.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 4- 3

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 124.0...126.0

1000 : (122.0...128.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...53

Testing:

1st rack travel in: 11.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1170...1200

3rd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 475...535

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.20...12.30
2nd speed rpm : 500
Rack travel in m: 13.10...13.20
3rd speed rpm : 910
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 130.5...133.5
1000 s: (128.0...136.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...135.0
1000 s: (122.0...138.0)
Rack travel in mm : 19.50...21.00

Remarks:
:

APPLICATION

Wheel loader

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 k 6
 Edition : 02.02.90
 Replaces : 20.5.88
 Test oil : ISO-4113
 Combination no. : 0 400 676 184
 Injection pump
 Pump designation : PE6A95D410RS2525
 EP type number : 0 410 696 987
 Governor
 Governor design. : RSV250...1200A5C2199
 -1L
 Governer no. : 0 420 232 450
 Customer-spec. information
 Customer : DAF
 Engine : DHTD 825

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4-

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.60...12.70
 Del.quantity cm³/ : 10.9...11.0
 100 s: (10.7...11.2)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 250.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm³/ : 0.7...1.1
 100 s: (0.4...1.3)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 700
 Del.quantity : 109.0...110.0
 1000 : (107.0...112.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 51...59

Testing:
1st rack travel in: 11.60
Speed rpm : 1230...1240
2nd rack travel in: 4.00
Speed rpm : 1290...1320
3rd rack travel in: 4.00
Speed rpm : 1310...1340
4th rack travel in: 1490
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6
Speed rpm : 250
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.40...13.50
2nd speed rpm : 400
Rack travel in m: 13.60...13.70
3rd speed rpm : 300
Rack travel in m: 13.80...14.30

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 700
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 11.60...11.80
2nd pressure hPa : 300
Rack travel in m: 12.30...12.40
3rd pressure hPa : 280
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 85.5...86.5
1000 s: (83.5...88.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1230...1240

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HAN 10/8 L
 Edition : 14.04.89
 Replaces : 10.7.88
 Test oil : ISO-4113

Combination no. : 0 400 676 100

Injection pump
 Pump designation : PE6A95D320RS2557-1R
 EP type number : 0 410 696 980
 Governor
 Governor design. : RSV350...1100A8C2217
 -1R
 Governer no. : 0 420 233 220.

Customer-spec. information
 Customer : HANOMAG

Engine : D964 T/6DE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1170...1200

3rd rack travel in: 4.00

Speed rpm : 1190...1220

4th rack travel in: 1360
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00
Speed rpm : 505...565

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 11.30...11.40
3rd speed rpm : 905
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 87.0...90.0
1000 s: (84.5...92.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

Cold-start testing of RSV governor
according to VDT-I-420/114.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 a 2
 Edition : 15.03.90
 Replaces : 12.9.86
 Test oil : ISO-4113
 Combination no. : 0 400 836 016
 Injection pump
 Pump designation : PES6A85D410/3RS2415
 EP type number : 0 410 886 915
 Governor
 Governor design. : RQV750AB1004L
 Governer no. : 0 420 212 093
 Customer-spec. information
 Customer : KHD
 Engine : BF6L913
 1st version kW : 42.0
 Rated speed : 1500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 1.90...2.00
 : (1.85...2.05)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 720

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 5.7...5.8

100 s: (5.5...6.0)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 250.0

Rack travel in mm : 6.8...7.0

Del.quantity cm³/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.2

100 s: (0.4)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 720

Del.quantity : 57.5...58.5

1000 : (55.5...60.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 14...22

Testing:

1st rack travel in: 10.20

Speed rpm : 735...740

2nd rack travel in: 4.00

Speed rpm : 778...793

4th rack travel in: 830

Speed rpm : 0.00...1.00

START CUT-OUT

Speed 1/min : 660 (0)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 747
Del.quantity cm³/ 1000 s: 38.0...40.0
1000 s: (35.5...42.5)
Speed rpm : 750
Del.quantity cm³/ 1000 s: 35.0...37.0
1000 s: (32.5...39.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 735...740

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 120.0...130.0
1000 s: (117.0...133.0)

Remarks:

:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,1p26
 Edition : 07.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 836 030

Injection pump
 Pump designation : PES6A95D410LS2542-1
 EP type number : 0 410 896 912
 Governor
 Governor design. : RQV250...1100AB1177L
 Governer no. : 0 420 212 162

Customer-spec. information
 Customer : MAN

 Engine : D2566 M/MF

 1st version kW : 177.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 000

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 014

 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

 Prestroke mm : 1.50...1.60
 : (1.45...1.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 0.9...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.20

2nd speed rpm : 375

travel mm : 2.10...2.40

3rd speed rpm : 500

travel mm : 3.50...3.80

4th speed rpm : 1200

travel mm : 9.60...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 124.5...126.5

1000 : (122.5...128.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:

1st rack travel in: 11.00
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:

Speed rpm : 100
Minimum rack trave: 8.20
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 345...415

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 500
Rack travel in m: 12.00...12.20

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ 1000 s: 107.5...113.5
1000 s: (105.0...116.0)
Speed rpm : 750
Del.quantity cm³/ 1000 s: 113.0...116.0
1000 s: (110.5...118.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 122.0...132.0
1000 s: (119.0...135.0)
Rack travel in mm : 15.50...15.90

Remarks:

:
Set idle stop at 250 min⁻¹ to a control-rod travel of 6.8 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 t 2
 Edition : 14.04.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 836 038
 Injection pump
 Pump designation : PES6A85D410/3RS2761
 EP type number : 0 410 886 895
 Governor
 Governor design. : RQ300/1250AB1244L
 Governer no. : 0 420 200 112
 Customer-spec. information
 Customer : KHD
 Engine : BF6L913
 1st version kW : 118.0
 Rated speed : 2500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 2.50...2.60
 : (2.45...2.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 8.7...8.8

100 s: (8.5...9.0)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 7.3...7.5

Del.quantity cm³/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 14.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 700

Del.quantity : 87.5...88.5

1000 : (85.5...90.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 1150

Rack travel in mm : 15.5

Testing:

1st rack travel in: 11.30

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1355...1385

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.4

Testing:
Speed rpm : 100
Minimum rack trave: 8.90
Speed rpm : 300
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 480...520

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.30...12.40
3rd speed rpm : 850
Rack travel in m: 13.60...13.70
4th speed rpm : 1005
Rack travel in m: 12.60...12.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.30...11.40

Measurement
Speed 1/min : 500
1st pressure hPa : 300
Rack travel in m: 11.60...11.70
3rd pressure hPa : 700
Rack travel in m: 12.70...12.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 88.5...90.5
1000 s: (86.0...93.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 62.5...63.5
1000 s: (60.5...65.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...120.0
1000 s: (107.0...123.0)
Rack travel in mm : 17.00...17.40

Remarks:

:
Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b 9
 Edition : 02.05.90
 Replaces : 28.9.89
 Test oil : ISO-4113

Combination no. : 0 400 836 041

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1100AB1227-
 1R
 Governer no. : 0 420 213 113

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.60...12.70

Del.quantity cm³/

100 s: (12.4...13.0)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 1.8...2.2
 100 s: (1.5...2.4)

Spread cm³ : 0.6
 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	:	1100
	travel mm	:	7.10...7.30
2nd speed	rpm	:	1150
	travel mm	:	7.50...7.90
3rd speed	rpm	:	1290
	travel mm	:	8.90...9.50
4th speed	rpm	:	350
	travel mm	:	1.10...1.50
5th speed	rpm	:	600
	travel mm	:	2.80...3.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	:	1100
Aneroid pressure h:	900	:	
Del.quantity		:	126.5...128.5
1000		:	(124.5...130.5)
Spread	cm ³	:	4.00
1000		:	(6.50)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 11.60
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1255...1285
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Speed rpm : 350
Rack travel in mm : 5.40...5.60

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 405
Rack travel in m: 10.90...11.00
3rd pressure hPa : 535
Rack travel in m: 11.80...12.20

START CUT-OUT

Speed 1/min : 260 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 79.0...83.0
1000 s: (77.0...85.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...185.0
1000 s: (160.0...190.0)
Rack travel in mm : 15.30...15.70

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3914299

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark is at 7° after start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b10
 Edition : 01.02.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 836 043
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1200AB1245R
 Governer no. : 0 420 213 118
 Customer-spec. information
 Customer : C.D.C
 Engine : 6CT830
 1st version kW : 157.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 017
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test Lines : 9 681 271 029

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 10.80...10.90
 Del.quantity cm³/ : 11.3...11.5
 100 s: (11.1...11.7)
 Spread cm³ : 0.4
 100 s: (0.6)
 2nd speed rpm : 350.0
 Rack travel in mm : 4.7...4.9
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.6
 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 250
 travel mm : 0.00...0.20
 2nd speed rpm : 350
 travel mm : 1.00...1.50
 3rd speed rpm : 450
 travel mm : 1.90...2.40
 4th speed rpm : 1200
 travel mm : 6.90...6.90
 5th speed rpm : 1350
 travel mm : 8.15...8.65

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity rpm : 113.0...115.0
 1000 : (111.0...117.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:

1st rack travel in: 9.80
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1315...1345
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16
Speed rpm : 350
Rack travel in mm : 4.70...4.90

START CUT-OUT

Speed 1/min : 290 (300)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.70...4.90
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3917098

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 3,8 q 1
 Edition : 10.02.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 844 051

Injection pump
 Pump designation : PES4A90D410RS2294
 EP type number : 0 410 894 011
 Governor
 Governor design. : RQV300...1425AB781L
 Governer no. : 0 420 212 046

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM314

1st version kW : 64.0
 Rated speed : 2850

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.70...9.80

Del.quantity cm³/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 300.0

Rack travel in mm : 7.5...7.7

Del.quantity cm³/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.2

100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460
 travel mm : 8.40...8.60

2nd speed rpm : 950

travel mm : 5.20...5.50

3rd speed rpm : 775

travel mm : 4.10...4.60

4th speed rpm : 550

travel mm : 2.70...3.00

5th speed rpm : 300

travel mm : 0.70...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1420

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400
 Del.quantity : 63.5...64.5

1000 : (61.5...66.5)

Spread cm³ : 3.00

1000 : (4.50)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 8.70
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1540...1570

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 200
Minimum rack trave: 8.20
Speed rpm : 300
Rack travel in mm : 7.50...7.70

CONSTANT REGULATION
Speed rpm : 350...500

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1460...1470

INTERMEDIATE RATED SPEED

Control lever
position degrees: 113...121
Rack travel in mm : 8.70
Speed rpm : 1295...1305
Rack travel in mm : 4.00
Speed rpm : 1395...1425

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 71.0...81.0
1000 s: (68.0...84.0)
Rack travel in mm : 13.70...14.30

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 k 6
 Edition : 03.11.89
 Replaces : 11.11.88
 Test oil : ISO-4113
 Combination no. : 0 400 846 432
 Injection pump
 Pump designation : PES6A95D410RS2416
 EP type number : 0 410 896 961
 Governor
 Governor design. : RQ750AB1240L
 Governer no. : 0 420 200 110
 Customer-spec. information
 Customer : KHD
 Engine : F6L413FR
 1st version kW : 89.0
 Rated speed : 1500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X-600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 1.90...2.00
 : (1.85...2.05)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm³ : 0.3

100 s: (0.5)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 9.40

Speed rpm : 750...755

2nd rack travel in: 3.70

Speed rpm : 780...785

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 10.40...10.50

2nd speed rpm : 500

Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 640 (660)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 12.90...13.20

Remarks:

:

APPLICATION

Generator set